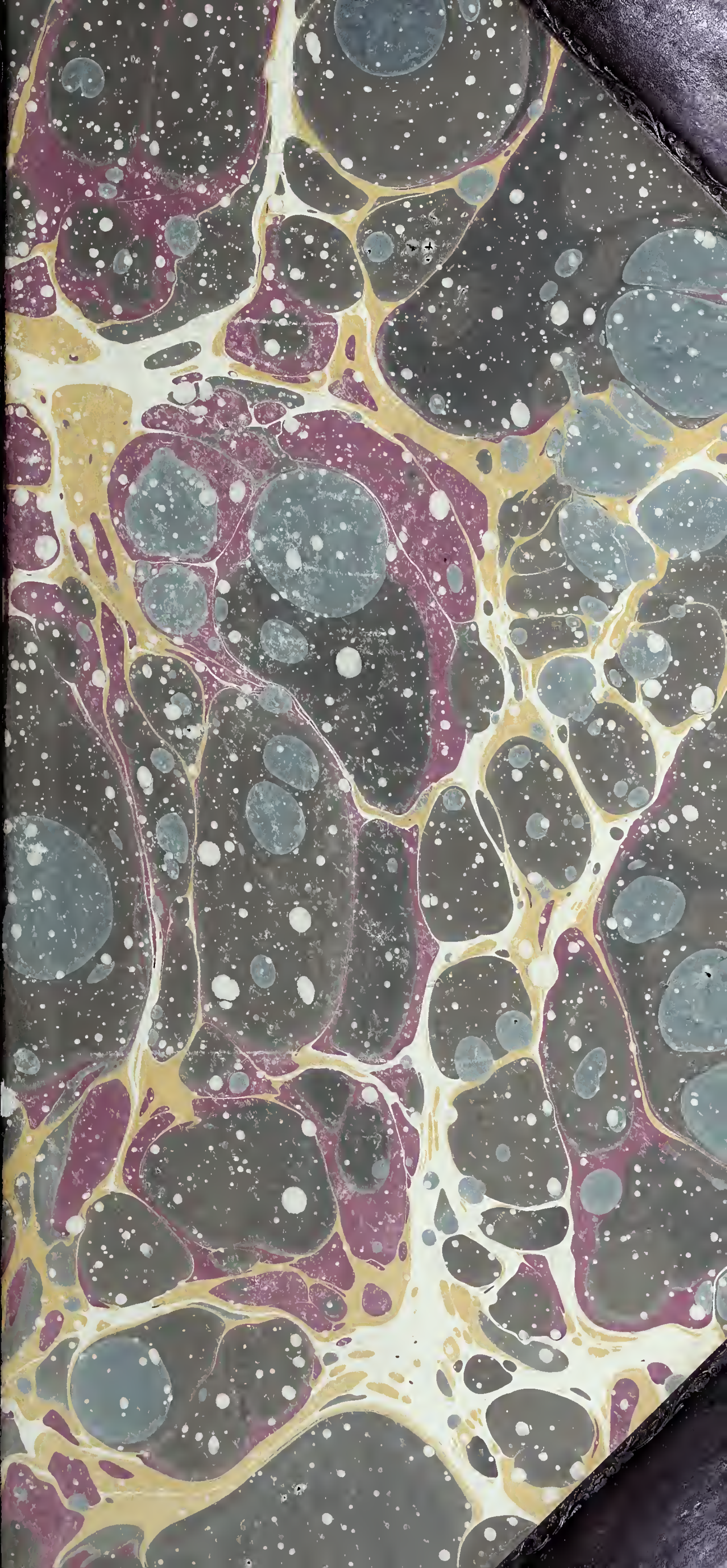

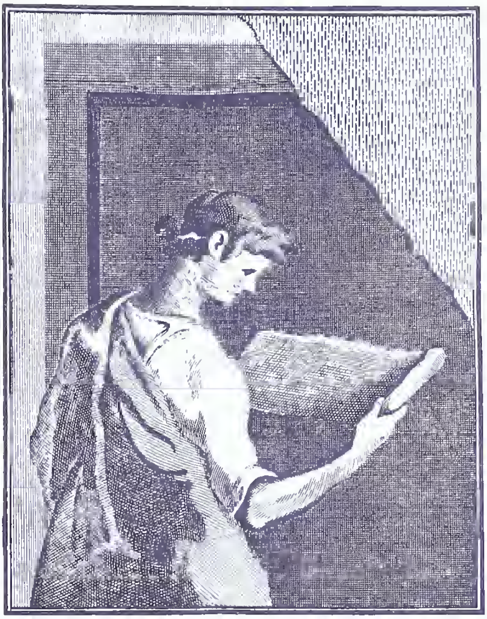

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THE

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PHOTOGRAPHIC JOURNAL.

VOL. II.—NEW SERIES.
1858.

LIVERPOOL:
HENRY GREENWOOD, 32, CASTLE STREET.
MANCHESTER:
J. B. DANCER, 43, CROSS STREET; J. J. PYNE, 63, PICCADILLY.
London: Horne & Thornthwaite, 123, Newgate Street; E. Marlborough & Co., Ave Maria Lane.
Edinburgh: James Wood, 85, Princes Street.
Dublin: J. Robinson, 65, Grafton Street.
Birmingham: Pershouse & Johnson, 28, Summer Row.
Glasgow: William Love, 40, St. Enoch Square; Joseph Spencer, 30, St. Enoch Square.
Belfast: Grattan & Co., 10 & 12, Corn Market.

LIVERPOOL:
PRINTED AND PUBLISHED BY HENRY GREENWOOD, CASTLE STREET.

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The
Liverpool & Manchester Photographic Journal.

New Series. No. 1, Vol. II.—JANUARY 1, 1858.

At the commencement of another year and volume, we tender our acknowledgments to our numerous friends—both contributors and advertisers—for the large measure of support accorded to this *Journal* during the past year. The change from a monthly to a fortnightly publication, made on the 1st January last, appears to have given satisfaction to our numerous readers, and has otherwise been entirely successful; it is also due to those who have contributed to this success to say that at no former period of its history has the position of this *Journal* been so stable or its prospects brighter. In order to deserve a continuance and enlargement of support, arrangements are in progress for an extension of the usefulness of the *Journal*, by concentrating in its columns all that is new in the Art, as developed at the meetings of contemporary Societies.

We wish our readers health, leisure, and fine weather in the new year now dawned, for that ardent prosecution of photography which we doubt not will yet characterise more distinctly than ever the present generation. That much has been accomplished we need hardly say. Every day adds to the number of the illustrations of the usefulness of the art, and it is matter of congratulation that this usefulness has at length been recognized, and cheerfully acknowledged, in quarters where formerly only a cold glance was bestowed upon the young efforts of this now *universal coadjutor*. Let each one REDOUBLE his (and her) exertions, and the close of 1858 will not be less gratifying or less fraught with materials for hopeful anticipation than is the present auspicious moment.

The first great business in hand is the preparation of specimens for the London Society's Exhibition. On this subject we would say a few words. There can be no doubt that any *quantity* of specimens can be got together that we please, and therefore all anxiety as to that point may be dismissed. Indeed we would restrict exhibitors more than has hitherto been done, as to the number of pictures hung from those which are sent. We would look to quality, novelty, and variety before all things else, and even go the length of rejecting altogether the whole of the productions of any one who may be ill-advised enough to send, as last year, things which were not fit to leave the operating room of the exhibitor. Where many pictures by one hand are sent, we would advise that the sender should name those which he esteems the most, so that the committee, if agreed, might, as far as it would be right, comply with the wishes of the exhibitor. This would get rid of a class of complainants who were to be met with last year. As to margins and frames, we wish certain appropriate dimensions and appearances could be generally adopted. We do not like the restriction of so *many inches* to *each picture*, irrespective of its size; but still one would think that the glaring violations of good taste and a proper restrictive policy which are often seen, might be avoided—for the sake of common fairness to all. We would find out some way of marking the displeasure of the committee wherever any gross infraction of their regulations was evident. We would place such pictures where they would not mar the general effect of better arranged specimens. We would have, in short, a corner for "odds-and-ends and *uglies!*" Then, as to hanging, we would follow the plan of the French Society, in not placing any picture *below* a certain point on the wall. In Paris, last year, a sloping table was fixed along the walls or partitions, and pictures placed on these were seen to advantage. These are questions of space and expense, we know; but they were attended to by our neighbours. We would go further than our continental brethren, and take care not to hang pictures so high as formerly, unless they can be better suspended, and at the same time properly illuminated. By attending to quality rather than quantity, all good pictures and all interesting specimens might be placed so as to be satisfactorily examined by the *studious* observer. Besides, the eye and brain would be saved much waste labour by having a selection to examine instead of having a *selection to make.*

Some attention should be paid to the marking *in pencil* of the name of the subject, the process, and the photographer, on each picture, in letters legible, but unpretending: all charlatanry being of course avoided or *expunged.* The catalogue would still be useful to contain additional particulars, and would be bought as a record, and used as a note book for the year's exhibition.

There is a subject which we must now take in hand of a less gratifying nature, and as it relates to the past year, we trust it can be disposed of "at once and for ever." Upon receiving the proof sheets of the proceedings of the Liverpool Photographic Society, we have been in the habit of noting in the margin any point which struck us as requiring comment. The thing was done at the moment, and with no other intention than that of doing justice to *all* our readers and ourselves, by pointing out any supposed or real inaccuracy of statement which occurred in the communications or remarks made to the Society. And as the *independent*

Editor of this *Journal*, we claim the right to do this. If the *Journal*, belonged to the Society, then its council or committee might claim to seek to control the Editor in such matters. However, as we really had in view no motive but the convenience of the practice, we shall waive our right as often as we see fit, and make our comment in a more general form. And as to the "foot notes" in question, Mr. Forrest proposed to use blue glass for the operating room, because glass decolourised by manganese, or other such agency, had changed by exposure to light, or air and light. Upon this we said that the blue tinge ought to be very faint, if blue at all. Indeed, we said that the whitest glass we could obtain ought still to be used—of course, meaning to exclude such white glass as is long known to be liable to change. What is there of "nonsense" in this? And, to show that our remarks were *practical*, we may state that, after consulting M. Claudet (an authority in this matter) and others, and after various experiments, it was decided to have the WHITEST *British sheet glass* which the Messrs. Chance, of Birmingham, could supply, for the glazing of the recently-constructed photographic room at the London Institution. Men thoroughly and *practically* experienced in the glass trade affirm that *tinted* glasses *deepen in colour* by time and exposure; so it yet remains to be seen whether Mr. Keith's room will retain its present excellence in a few years hence. We at present leave out altogether certain important theoretical considerations which might be urged in favour of white glass, and trust to Mr. Forrest's fairness to retract the word "nonsense," now that we have given this practical exposition of the doctrine contained in the foot-note he appears so strongly to object to. Mr. Gill charges us with an "unjust insinuation" respecting his pictures, because we stated a fact known to every student in *practical* optics—namely, that a glass mirror gives a double image of objects reflected at a certain angle from its surface. How does Mr. Gill answer this statement? Why, by getting "the members present" to assert that his pictures taken by means of glass mirrors have the two reflections "perfectly coinciding." We wish to be respectful to our Liverpool friends, but we really have to summon up all the good resolutions which a new year usually inspires to keep us from characterising their powers of observation as they deserve. We shall content ourselves by saying that the accuracy of our statement remains unimpugned, and that Mr. Gill cannot get the two reflections to coincide, as he supposes. M. Claudet, knowing this fact, uses a prism, where total reflection can be obtained from one *surface*, and thus avoids the error into which Mr. Gill will, sooner or later, find he has fallen.

It will be seen by the proceedings at the Liverpool meeting, that it is proposed to amalgamate the Liverpool Photographic Society with the Historic Society of Lancashire and Cheshire. Deputations from both societies have been appointed to discuss the details of the arrangement. We will only add here, that we regret the change, and may have something to say upon it in our next.

We have not space in this number for inserting our promised remarks on *Photographic Notes*.

Mr. Burnett has been good enough to send us specimens, &c., which shall receive attention in our next. The uranium print is very fine.

We also intend giving some particulars of the Photographic Dissolving Views, &c., exhibited at the Manchester Mechanics' Institute, David-street, in our next publication.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

THE seventh ordinary meeting of this Society was held at the Chorlton Town-hall, on the 10th ultimo, the Vice-President in the chair.

After the minutes of the previous meeting were read by the Hon. Secretary, MR. DEANE read a Paper on "*The Nitrate Bath*," more especially as applicable for the production of positive pictures; but, as his remarks have, to a considerable extent, been anticipated by Mr. Glover, whose paper appeared in this *Journal*, on the first of December, a lengthy report is considered unnecessary. He strongly advocated, however, the use of oxide of silver for neutralizing *excessive* acidity, and advised that it be kept constantly in the silver solution; yet, he was at the same time of opinion, that a trace of nitric acid is essential to the production of a clear and faultless positive. He also condemned the use of acetic acid, or the acetates in either a positive or negative bath, and inculcated the necessity of having it entirely free from the presence of particles of collodion or other impurities in suspension; and, for effecting this, described and exhibited a filter that he had had in use for some months, and which he considered invaluable to professionals. It consists of a funnel, the lower part of which is filled with layers of sand of different degrees of fineness, to the depth of two or three inches, and on the surface of which a few pieces of clean glass are placed, to prevent the former being displaced when the liquid is poured in; it filters with considerable rapidity, and more effectually than paper; will keep in working order for a long time, and when once moistened, is free from waste, if kept covered to prevent evaporation. The sand should be well washed in dilute nitric acid, and afterwards in water, before using.

As a sequel to the above, the CHAIRMAN called the attention of the meeting to a simple, inexpensive, and effectual mode of decolourizing the bath, which he had successfully employed for some months, namely, by the addition of a small quantity of clean Fuller's earth, in fine powder. He had found this more effectual than kaolin or animal charcoal. The bleaching properties of this earth are also of considerable value to artists, inasmuch as the darkest coloured oils, such as linseed, may be rendered colourless by allowing them to percolate two or three times through a layer of it placed in an ordinary funnel.

Four new members were enrolled, and the meeting terminated after votes of thanks were passed to Mr. Deane and the Chairman.

The next meeting will be held on the second Thursday in Jan., when an Essay will be read by Mr. Hepworth, containing "An Historical Sketch of the Photographic Art, and its present influences.

LIVERPOOL PHOTOGRAPHIC SOCIETY

At the monthly meeting on Tuesday night, December 22nd, at the Royal Institution, Colquitt Street, there was an unusually good attendance, owing probably to the rumour that a proposition was to be made to merge the Society in the Historic Society of Lancashire and Cheshire. In the absence of Mr. Corey, Mr. Bell, one of the Vice-Presidents, was called to the Chair.

Mr. Forrest, the Treasurer, exhibited some beautiful specimens of the collodio-albumen process, by Mr. Robinson, of Leamington, and a vignette portrait, printed on glass, by Mr. Keith, of Liverpool, and burnt-in by himself, in enamel colours fluxed on the glass, and burnt-in over the photograph. Though hurriedly done that afternoon, and subjected only to one burning, the result was highly satisfactory, as showing what may be done in this phase of the art. The outlines were beautifully sharp and distinct, the colours bright and natural, and the image perfectly indelible.

THE POSITION OF THE SOCIETY.

The Chairman said he had received a note from Mr. Greenwood, the Proprietor of the *Liverpool and Manchester Photographic Journal*, copies of which would doubtless have been sent to all the members, conveying the surprising intelligence that this Society had amalgamated with the Historic Society. He supposed they should hear something more about it, if they called upon Mr. Keith, who had received some communication from the Historic Society.

Mr. Keith, Hon. Secretary, read the following letter :—

Liverpool, 18*th Dec.*, 1857.

Dear Sir,—At the council meeting of this Society last evening your letter to Dr. Hume was discussed, and a deputation of three members, viz., Messrs. Sansom and Baxton, and the Rev. A. Hume, D.C.L., &c., hon. sec. to the Society, was appointed to confer with the delegates of the Photographic Society on the subject of your communication.—I am, dear sir, yours obediently,

J. H. LEVER, Asst. Sec.

J. A. Forrest, Esq., &c. &c. &c.

Mr. Forrest, in reply to a member, said the communication from himself, to which this was an answer, was merely opening the question of amalgamation on the proposed basis of last year. He suggested that a deputation should be appointed to meet the deputation of the Historic Society, reporting the result of the conference to a future meeting.

The Chairman supposed that the active members of the Society, after giving it another year's trial, had not met with the support they had anticipated, very few members having come forward to assist the council with papers and photographic information, although the usual meetings had been pretty well attended. His own impression was that by amalgamating with the Historic Society, which had a vast number of members, they would be advancing the interests of photography in Liverpool, and therefore in England, and therefore in Europe, by bringing the science before a larger body of members. He opposed the proposition last year because he did not consider the Society would be joining hands with the Historic Society on fair terms; their affairs were, however, now in a better position, and he had not the same objection he had then.

Mr. Forrest observed that with hard dunning and fighting the Society had this year paid its way, and he had in his hands a balance of £10 11s. 6d., against which there was an old unsettled account, which had stood over for three years, in connection with the Photographic Exhibition. When that was discharged there would still be a balance of £3 11s. 6d. in favour of the Society. With respect to the amalgamation he stated that for the past four years he had devoted a great deal of his time to the Society, but that now, owing to the ill-health of his partner, he should be compelled to direct his entire energies to his own business, and he should therefore be unable to take any prominent part in the work of the Society.

In reply to Mr. Cook, Mr. Forrest stated that the grounds of the proposed amalgamation were, that they should enter the Historic Society as members on the terms of their own members—the payment of an annual fee of one guinea without paying the entrance fee; that they were to have the full privilege of attending all the meetings of the Historic Society; that the council would enter into and form part of the council of the Historic Society, the officers of each acting together. It would, in fact, just be a transfer, having all their privileges and rights reserved.

Mr. Cook—What guarantee would there be that we should have any photographic communications, and that we should continue to be a photographic society?

Mr. Bell.—There would, no doubt, be a photographic section every month.

Mr. Forrest.—The Historic Society has a night set apart for the scientific section, and for miscellaneous matter.

Mr. Corey, who had just come in, on being appealed to for his opinion on the matter, as one who had taken a very prominent part in the affairs of the Society, said:—Mr. Forrest has stated so much that he has left very little for me to say. We are entirely in the hands of the present meeting. I can bear witness that it has been a great labour to some of us to provide entertainment for members from time to time, and I for one say that I cannot do so any longer, though I am afraid, if we do amalgamate, that our individuality will be lost—that we shall no longer exist as a Photographic Society. But, I do not think that the members of the Society should look to a certain few of their body to provide them entertainment, month after month. When we can do this no longer, we must give it up, as we are obliged now to do. If other gentlemen will come forward to provide papers and information for their ordinary meetings, I, for one, shall be prepared, most gladly, to add my quota towards the continuation of the Society as it is; and I came here to-night, prepared to support the continuance of the Society for another year, inasmuch as we should start on very much more advantageous circumstances than ever before. I don't think, however, unless there is some great change, some infusion of new effort and energy, that this can be done with success, and I shall therefore support the proposed amalgamation with an elder brother—the uniting ourselves with men of great talent in literature. We shall still have opportunities of discussing our own matters, on as many occasions as we shall be able to provide matter for them.

Mr. KEITH thought the proposed arrangement was highly desirable.

A MEMBER asked what arrangement would be made about the *Photographic Journal* being furnished to them, if they amalgamated with the Historic Society? Upon which the Chairman referred his interrogator to Mr. Greenwood. Some conversation then ensued, during which some remarks were made by those members whose communications in the *Journal* had been commented upon in "foot-notes," by the Editor, to which subject it will be seen we have referred in our address.

On the proposition of Mr. Forrest, seconded by Dr. Ayrton, Messrs. Corey, Keith, and Foard, to whom the name of Mr. Forrest was subsequently added, were appointed a deputation to meet the deputation of the Historic Society.

Mr. Foard consented to act as auditor of the accounts for the year just passed.

Mr. BERRY said he had been for some months past making experiments with the view of finding a substitute for collodion, and he had at length arrived at a tangible result, and hoped, on another occasion, to be able to submit specimens to the meeting. He had always, he said, considered collodion perfection, as a surface to work upon. They knew that it was perfectly fluid; that when poured on the plate it set with an equal thickness all over by the evaporation of the ether; and that last, while still moist, and the pores still beautifully open, when plunged into the bath it imbibed the nitrate of silver, and the necessary chemical decomposition took place. He had always kept these qualities in mind in searching for a substitute for collodion. Many organic bodies had been tried, as starch, for instance, which yields a very porous film, but does not adhere with sufficient tenacity to the glass. Starch pictures, too, were nearly as rapid as collodion. With albumen it was the converse; it was perfectly fluid, and would imbibe the chemicals required; but when poured on to the glass it gives off only water, and the result is a solid film almost perfectly impervious to the action of the bath. Albumen requires a sixty grain bath at least. After casting about for some months, it struck him that *casein*[*]—the rejected substance of Mr. Sutton's process, he using the *serum* only—if it could be made into a liquid which would be volatile, would give a pure homogeneous surface. In experimenting he found that it was soluble in strong acetic acid; and it struck him that a solution of casein and *acetic acid* would be a proper medium for receiving pictures. Unfortunately all the *iodides* and *bromides* he tried precipitated the whole of the casein from its solution in acetic acid. There he left it, believing that *casein* was not the thing at all. Accidentally turning over a chemical work one day, he found another peculiar property of *casein, i. e.*, that it is very soluble also in alkalies, and especially in *ammonia.* It then struck him that if the *casein* dissolved in *ammonia*—would hold in solution the iodide and bromide required to make the surface sensitive, it might answer. He proceeded immediately to prepare some. He washed away the acetic acid from the precipitated *casein*—then some five months old—dissolved it in *ammonia*, adding the iodide, and he obtained a perfectly homogeneous fluid. There was a separation of a portion of the cream. In precipitating the casein from the skimmed milk, there would necessarily be some cream carried down; and when that was dissolved in the ammonia, it formed a kind of soap, and was difficult of separation. If it had not been so, he should have had some perfect negatives to have shewn them. They might make the solution as thick as treacle if they liked; it would still be perfectly fluid. Casein, at a certain temperature, combines with oxygen and becomes insoluble in water; therefore, in preparing the plates, they should not be exposed to a heat of more than 212°, but with that they would form a glossy surface, which could not be distinguished from albumen. If plunged in an ordinary thirty-grain nitrate bath, it coated almost as quickly as collodion, and it might be used either in its wet or dry state, developing with ordinary pyrogallic acid. He preferred using the citric to the acetic acid, because the latter had a tendency to dissolve the film; they must not use cyanide because it dissolved casein as well as albumen. When the picture was cleared, all they had to do was to dry and heat it again, and then the film was so hard that they could scarcely scratch it with the finger nail. He had obtained very good negatives in a room with it, in two minutes, and they would have to give a minute at least to wet collodion.

In reply to Mr. Cook, Mr. Keith, and other members,

Mr. BERRY stated that applying heat about 212° the ammonia was driven off; the bath was not extra acid; he preferred the positive bath. It did not injure the bath in the slightest degree. He cleared with hypo; if the negative was weak, and they cleared with gold, it would intensify the image very much. Unlike albumen, which a short period would serve to destroy, this casein substitute for collodion would keep twelve months or longer. It was a chemical compound, just as soap was; it was, in fact, a solution of *casein* in *ammonia.* With a little care they could get rid of the oily matter precipitated by the *acetic* acid.

The detail of the pictures obtained by this process was splendid.

A vote of thanks was, on the motion of Mr. Forrest, accorded to Mr. Berry, who, in responding, begged every one would try the process, the strength of the iodizing mixture to be used being six grains of iodide of ammonia to one ounce of this solution. They must not use the metallic iodides and bromides, because they precipitated the casein. He was inclined to think that potash or sodia was the best. The strength of the ammonia was quite immaterial. When the ammonia was evaporated the film was colourless, and they would not know there was anything on the glass. He had seen very good positive pictures from it, as far as colour went. He would not think of trying it for portraits, because it was not so sensitive as collodion; but for large surfaces it was much more economical.

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[*] This has been long suggested by Dr. Lyon Playfair, who is familiar with its use in calico printing.—ED. L. & M. P. J.

Mr. Bell said he had seen two of Mr. Berry's plates, and he thought it was the greatest desideratum they had yet possessed.

After some further conversation, the subject dropped, and a vote of thanks to the Chairman terminated the proceedings.

LONDON PHOTOGRAPHIC SOCIETY.

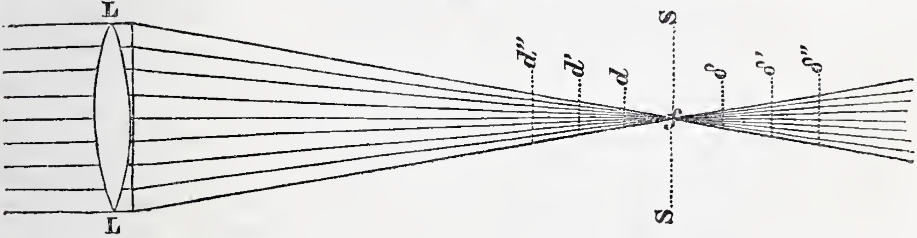
The following is the concluding portion of the paper read by Mr. Grubb, at the meeting of the Society on the 3rd ult. In our last publication we promised to give a report of the discussion upon this, and also Mr. Pretsch's paper, but upon re-consideration, as no really practical conclusion was arrived at, and being pressed for space, we have decided upon omitting it.

"*On some of the Optical Principles involved in the construction of Photographic Lenses.*"

The acting angular aperture of a photographic lens (view or portrait) is varied *pro tem.*, not only by the addition or substitution of a stop, but also by approaching the object to the lens, and thereby causing its image to be formed at a greater distance on the other side; and in portrait photography the difference caused by the latter change is often considerable. It will, however, be sufficient for the present purpose if we consider the angular aperture as that which the lens or compound has *for parallel rays;* this is at once the maximum angular aperture, and that which is to be generally understood as meant. It is desirable also to premise that in speaking of the focus of a portrait combination, its equivalent focus is generally to be understood.

The focus of an ordinary view lens is approximately that of the distance of its first surface from the image (of a distant object). The equivalent focus of a portrait combination may be readily found with sufficient accuracy by dividing the measured focus of a spectacle-lens (by preference one of nearly the focus of the compound), by the fraction representing the respective linear dimensions of the images of a large distant object formed by the compound and the single lens; for example, say that the focus of the spectacle-lens is found to be ten inches, and the images formed by it and the combination are as 5 to 4 in linear measurement—then $10 \div \frac{5}{4} = 8$ inches, the equivalent focus required.

The portrait photographer, desirous of reducing the time of action to a minimum, seeks by all possible means to effect so desirable an object. Amongst others, he tries that of lenses of increased angular aperture, but the difficulties of keeping all portions of the object in tolerable focus (previously sufficiently harrassing) are now increased. Lately this difficulty is *professedly* solved; lenses are advertised of a "long chemical range," and, in some cases, at least, lenses have been selected for use—less for their intrinsic merits in other respects, than for the lesser indistinctness (supposed or real) of their images, for objects out of focus.



Now the term "long chemical range" must, from the manner in which it has been used, be understood to mean a longer chemical range than other or previous combinations of the same aperture and focus possessed; while any party who selects a lens out of several of the same nominal size, as having an apparent longer visual range than the rest, must be under the impression, that not only the chemical, but also the visual "ranges," are not constant for a given aperture and focus. Conceiving that herein is error, at once directly opposed to optical truth, and calculated to retard sound photographic progress, I propose to consider *whether the whole affair is not simply a delusion, which, the sooner it is discarded the better.*

The first step herein is evidently to examine the origin and nature of the confusion arising from the ground glass (or sensitive surface) of a camera not being in the plane of the image, or (in photographic language) in true focus.

Let L L be a lens free from aberration, and forming a distinct image of a small brilliant object (a star for example) at *f*. This image (if bright enough) will be seen as a luminous point on a suitable surface placed vertically to the axis of the lens at *f*; but if this surface be moved alternately within and without the focus, the brilliant point will swell out into a disc of light, increasing in magnitude as the surface *s s* is made to recede from either side of the focus.

And, as that which is true for any one point or star is also true for any number, so the confusion or indistinctness which we have under consideration is caused by the overlapping of an infinite number of little discs, instead of as many distinct and separate points being represented or projected on the surface placed to receive them. In other words, let an image be considered as made up of an infinite number of distinct points, and let each one of these be supposed as spread out into a disc of greater or less magnitude, and we have a correct idea of the nature of the indistinctness caused by an image (or rather the converging pencils which would form such) not been received at the true focus on the surface intended to receive same.

So far for the *nature* of the indistinctness; *next for the laws which govern its amount.*

Chemical or actinic rays afford no exception to the general laws of optics, that rays proceeding through a medium of equal density, and not affected by any extraordinary force, do so *in straight lines.*

In the case before us, speaking strictly, and supposing the lens L L to be perfect; or, speaking practically, and supposing it to give as distinct an image as that given by a good photographic portrait combination, then it is obvious—first, that the diameter of any disc (or transverse section) of the converging beam, $L f L$ (which is also a measure of the confusion of the image) is directly proportioned to the distance of said section from the true focus, and the diameter of the lens conjointly; secondly, that transverse sections of the beam, taken at equal distances, as d, d', d'', δ, δ', δ'' (before and after convergence), from the point f, will have equal measures and equal intensity; or let A be the aperture of the lens, f its focal length, d distance from f (if any section of the beam), and e the confusion of the image; then

$$C = \left(A \times \frac{d}{f}\right)$$

Such is the case so far as a single combination is concerned, which, as before stated, I have supposed to be aplanatic; and, without grossly departing from this latter condition, no practical (or decided) amount of difference in that under consideration can be obtained. I am, of course, aware, that by adopting a lens with a large amount of spherical aberration, the case would be slightly altered; but what then? There would be indeed a diminution of the circle of confusion on one side of the focus but there would be at same time an equivalent increase of the same on the other side; while the lens would, from its great spherical aberration, be worthless as a portrait-lens.

I desire here to be clear, even at the risk of repetition. The ordinary view-lens will answer for illustration. It has a large and unbearable amount of spherical aberration *for the whole aperture;* but a small amount only for the diameter of any one pencil of rays, as admitted by the stop in front. Now in this lens, and using the ordinary sizes of stops, no appreciable lengthening of the focal range on *either side* of the focus can be obtained, while an attempt to use a much larger aperture of the lens would at best, produce as much *shortening* of the focal range on one side of the focus, as *lengthening* of the same on the other. Any one who has access to a camera, &c., can test what has been advanced, practically, in the absence of daylight, as follows:—

Near to one end of a room place the camera, and at the other a good Argand-lamp, without a muffled shade; screen the direct light of the lamp from the camera, and place a mercurial thermometer, having a spherical bulb, about one foot from the source of light, and so that the rays falling on the bulb will be reflected towards the camera. Thus will be provided an "artificial star," which, being focussed in the camera, will be found useful for many experiments with lenses, both simple and compound.

To prove the correctness of what has been insisted on, in respect of a corrected pencil of converging rays, proceed as follows:—mark, or in any other way, register, the adjustment of the focussing when the image of the lucid point of light is distinct on the greyed-glass (by using a portrait-combination with its full aperture, the results will be the most decided); then move the greyed-glass, by measured quantities, alternately within and without the focal distance, and measure the diameters of the respective discs at each position. If the lens be even moderately good, the appearance inside and outside the focal distance will be singular, and agree, in all respects, with what has been stated. By using an ordinary view-lens, (after all stops and diaphragms are removed, and its whole aperture exposed,) the effects due to positive spherical aberration will be very apparent, and also be in accordance with what I have advanced in respect of such, viz., than any lengthening-out of the focal range on one side is accompanied with, and neutralized by, a reverse effect on the other side of its focus.

In the examination of any lens, simple or compound, for spherical aberration—if, on pushing the greyed surface, or screen, within the focal distance, so as to receive a section of the beam converging to a focus, the appearance is that of a luminous ring filled up with a fainter light; then, on drawing the greyed surface beyond the focus, or into the beam diverging from that focus, the appearance of the section will be that of a brighter central spot surrounded by a fainter light or halo, and the lens is under-corrected for spherical aberration. If, on the contrary, these appearances are inverted, the aberration is over-corrected.

Postscript.—It may be desirable to anticipate a question which will naturally occur to some persons, viz., *how* the difference (real or imaginary), of chemical or visual "range" arises? Supposing it to be "real," I can account for it only by a small difference existing in the angular aperture of the objectives under trial. This may arise from several causes, but (when the lenses are of the same make), most likely from a difference of distance, *inter se,* of their respective lenses. An "imaginary," or apparent, but specious difference, would arise from the several objectives not affording equally distinct images *(when in focus).* A given and equal indistinctness of objects out of focus will be comparatively, and therefore apparently, less in the case of an indifferent lens, than in one giving a very perfect image at its focus. In either case, *i. e.*, whether the "longer range" is real, or only apparent, a choice conducted in reference to this range, is likely to result in the selection of the least valuable lens of the lot.

This communication has already exceeded its intended length; I trust it adequately demonstrates that, so far as a single combination at least is concerned, no range of focus can be communicated to it other than that which is determined by the conditions of its focus and aperture. The *modus operandi* given for practically testing the matter, it will be observed, is equally applicable to all cases whether of single or compound objectives. The subject will, however, have been treated more completely, if, in a future paper, I shall show, on theoretic grounds, that compound or portrait-lenses, are placed under precisely similar limited conditions in respect of their definitions of focus, as are the more simple or single combinations.

ACCOUNT OF A METHOD OF CONVERTING COLLODION NEGATIVES INTO POSITIVES, BY HEAT.

By John F. Campbell, Esq.

In the end of 1854, I observed that a broken glass negative changed colour on being thrown into the fire.

I then tried several experiments with small negatives. I held the glass by one corner with the tongs, and passed it gradually into an ordinary coal fire, selecting a place between the bars of the grate where there was a good red heat and no flame or smoke. By carefully and slowly drawing the glass out after it had got to a red heat, by avoiding contact with the fuel, and by holding the collodion side of the plate downwards to avoid dust, I succeeded in producing a number of positive pictures, which I varnished and backed with black varnish in the ordinary manner.

Many glasses were broken in my first attempts. Some pictures were too pale, some were yellow, some were too white; but the defects in those which escaped breakage appeared to be due rather to the chemical than the burning process, and I persevered.

I have made a number of experiments since 1854, and the result is the following process, which I have found tolerably successful.

Process.

Take a picture by the ordinary collodion process on plate glass, which stands heat better than the other kinds usually sold for photographic purposes. Carefully remove all traces of iodide of silver, which gives a yellow colour in the shadows if any is left; dry, and varnish with amber varnish.

The negative may now be used for printing in the pressure frame. To convert it into a positive: lay the plate, varnished side upward, on a layer of pounded chalk or white sand spread evenly on an iron tray (a shovel or a frying-pan will do). Heat the whole to a dull red heat over a fire. It will be well to protect the plate from dust during the process by covering it with a bit of talc.

The layer of chalk or sand distributes the heat gradually and evenly over the plate, and diminishes the risk of breakage. The *whiteness* of the layer permits the process to be more easily watched. The varnish first smokes; the picture becomes clearer and darker, then darkens all over—turns from black to grey.

It then assumes a variety of colours, which by reflected light are very brilliant. It becomes orange in parts, then blue and purple in parts, then slate-coloured in parts, lastly green in patches, and then a white positive picture.

When the high lights are blue the shadows are generally orange, when the high lights first turn white some parts of the picture remain blue. One picture was stopped at this point, and retains some colour in the dresses. The faces and one corner were beginning to whiten when the operation was stopped, but being backed with varnish, poured on the collodion side, the colours are faint, and by lamp-light hardly visible.

When all parts of the picture first become white it is at the best.* It is then time to remove the plate from the heat, and allow it to cool gradually. Heat continued weakens the shadows by whitening them. Still more heat weakens the whole picture, probably by altering the condition of the silver.

Seen through a microscope of strong power, by reflected light, the picture shines as frosted silver, in points of coloured light on a dark ground. The points are nearest each other in the high lights. By transmitted light the plate appears covered with a fine dust, scattered thinly in the shadows, more thickly placed in the half lights. In the high lights the silver appears as a continuous film, with small holes in it at regular intervals. Seen by both reflected and transmitted light, the silver appears like a white sand distributed on the glass, in several layers in the white lights, but scattered in the shadows and half lights

The possibility of producing photographic pictures with the natural colours by some modification of this process, has frequently occurred to me, and though I have hitherto failed to produce *local* colour, I would suggest that those who have more leisure to devote to such experiments should turn their attention to the subject. Many substances may be made to apppear of any colour by dividing them into plates sufficiently thin.

The brilliant colours which succeed each other while the collodion is burning away, probably depend on the thickness of the film through which the silver dust is seen. The rate at which the collodion burns must depend on the conducting power of the substances in contact with it, and the thickness of the film may depend on the amount of silver deposited on various parts of the plate. It may be that by some improvement of this roasting process, the film may be so affected by the silver deposited in it, as to vary in thickness to the amount which will produce colour in its proper position. I have once succeeded in stopping the process when the sky of a landscape was blue and the trees green, but that result was accidental.

The uses to which this burning process can be turned are numerous. Pictures taken on metallic plates, glazed with a dark glass, would be less liable to break in heating. By fusing an enamel over the silver, photographic enamels could be produced. A gentleman who superintends the glass works of Messrs. Powell, undertook to try some experiments for me several months ago, but I do not know if he has produced enamels. The same gentleman was kind enough to allow me to use one of his furnaces, where, with his assistance, I succeeded in roasting a number of good-sized plates, with very few breakages.

I have thought that the silver might be made by a great heat to sink into the glass and produce depressions on its surface, from which, the silver being removed by acids, prints might be taken with ink.

I have tried to engrave a glass plate with fluoric acid, after removing the collodion by heat, but hitherto I have failed in my attempts at photographic engraving on glass; others may be more successful.

It may be interesting to your readers to know that transparent pictures copied in the camera, from glass negatives, make good ornaments for windows. Smaller transparencies make good slides for magic lanterns. They may be backed with white or with coloured oil paints, when they appear like drawings or oil pictures. These plates must be varnished before they are painted. When the oil paint is dry, or while wet, the pictures may, with care, be removed entirely from the glass, and kept in books, or, while the collodion is wet, it may be transferred from the glass to paper. A process for colouring paper photographs, in oils, was patented by a gentleman of the name of Duppa, some years ago. The method of colouring transparent *collodion pictures* is preferable, but any one desirous of carrying on this process for gain, would do well to consider the terms of Mr. Duppa's patent.

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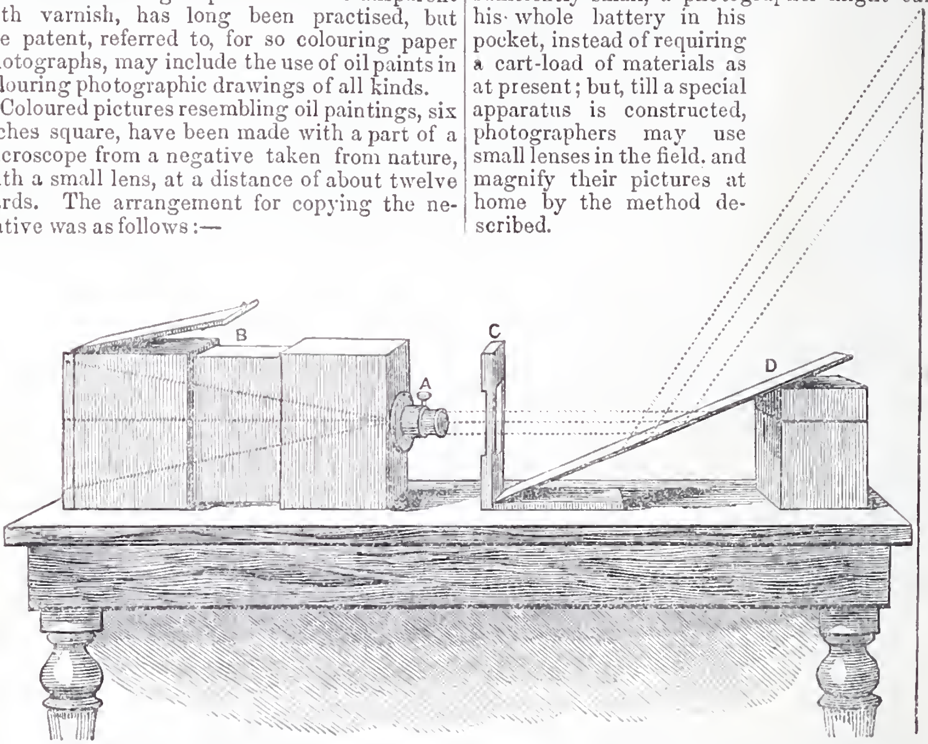
* The rays of the sun collected in a strong burning glass act on the collodion pictures in the same way as artificial heat, and change the silver from black to white.

The oil colouring of prints made transparent with varnish, has long been practised, but the patent, referred to, for so colouring paper photographs, may include the use of oil paints in colouring photographic drawings of all kinds.

Coloured pictures resembling oil paintings, six inches square, have been made with a part of a microscope from a negative taken from nature, with a small lens, at a distance of about twelve yards. The arrangement for copying the negative was as follows:— The glasses were removed from an ordinary portrait lens, and the inch power of the microscope was screwed into the diaphragm (A). The brass of the portrait lens, with the inch power and diaphragm inserted, was then replaced in a long-bodied camera (B), constructed, at my request, for this purpose, by Mr. Ross, last August. The negative was placed in an upright stand (C), and a looking-glass (D) was so placed behind it as to reflect light from the sky. The whole apparatus stood on a table near a window. The advantage of taking negatives of small size, and magnifying them afterwards, is the great reduction in the size of the apparatus necessary.

If any of the makers of optical instruments would construct a camera to take negatives sufficiently small, a photographer might carry his whole battery in his pocket, instead of requiring a cart-load of materials as at present; but, till a special apparatus is constructed, photographers may use small lenses in the field, and magnify their pictures at home by the method described.



CORRESPONDENCE.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—With proper care, there is no doubt but that, even in this climate, paper, or still more, parchment paper, (or silica* or alumina-prepared paper,) may endure for a very long period; but the mischief is just this, that one week's, or perhaps one day's, carelessness, the entrance of a few drops of rain, or the attacks of vermin, even some insignificant insect, might destroy what had stood for ages. In the case of photography used for book illustration, these risks are not perhaps so great, and must of course, from the nature of the case, be submitted to as far as they go, but in the cases of portraits, landscapes, copies of paintings or engravings of the larger size, such as might be suitable for the decoration of houses or public buildings, how very desirable to secure for the support of the picture a tablet of some material which shall both be itself indestructible from time, damp, and the ravages of vermin; and of such a nature as to permit the penetration and amalgamation of the metallic oxides, or other substances of which the picture consists, to such an extent as to secure the picture's partaking of the imperishableness of the tablet. That this absolute amalgamation is an essential requisite we see from the old daguerreotype which, though on an imperishable tablet, is itself one of the most easily injured of photographs. Porcelain, glass, and many other vitreous and ceramic, vitrified or semi-vitrified compounds, such as may be produced by the artificial combination of earths, alkalis, borates, &c. &c., (and metal, stone, slate, &c., with a coating of glass or allied compounds,) from the facility with which the metallic oxides, metals, or their compounds contained in the photographic picture may be made to adhere to, or amalgamate with them on the application of heat, hold out exactly what we are looking for. The same substances as supports for films of collodion, &c., may no doubt give very valuable and beautiful results, even without burning in; but this still does not exactly give us what we are so much in want of —a photograph which, though not of course proof against intentional injury or violence, shall yet have a durability identical and co-extensive with that of the undecaying fabric on which it is fixed, a work of art which, (whether the photograph be the principal consideration or only decoratively employed,) shall give promise of such integrity after the lapse of ages as we now witness in the products of the potteries of ancient Etruria, of China, or of India. This I have long been wont to consider, (and I suppose I have not been altogether singular in my estimate of its desirableness,) as the second great desideratum in photography, to be placed alongside that already alluded to, of a cheap and permanent, (as far as the paper will allow,) process for purposes of book illustration, and natural history delineation; and it has been also in a great measure—I may perhaps say fully as much with a view to the attainment of this second desideratum —that my experiments have been carried on, and it will, I believe, be found that the processes which I have already enumerated, along with the indicated variations, afford the means of producing good dark neutral tints, such as may be useful for all ordinary purposes of photography, (which silver has never yet been made to yield,) as well as a minor but still very interesting consideration—the means of decorating our pottery of every description, tiles for architectural purposes, glass, &c. &c., with an endless variety of photographic designs, simple or kaleidoscopic, in a great variety of neutral tints or colour, and we may even produce more than one colour in one compound design, printed at one time, *e. g.*, by printing in the first instance with the bichromate of *ammonia*, *soda*, or potash alone; and in the after stages managing so that different metals shall be precipitated on the different parts of the design. We might even hope in the same way to obtain something like an approach to the representation of certain subjects in natural colours, though for this it is probable that the system of photo-chromo-lithography, which I have elsewhere described, might be found more workable. In all burnt-in photography, the principle of attention to the colour of the metallic compounds which form the residue of the picture after its passing through the fire, particularly as affected by heat, by these combinations with silica or silicates, and other substances which exist in the glass, porcelain, or other tablets, or its superficial glaze or enamel, or with each other, as already well known to, and carefully studied by, the painters, stainers, and printers, must be kept constantly in view. The cause of the imperfect success, as far as any generally valuable result goes, of all attempts at burnt-in photography of which I have heard, has been the yellow colour which silver produces in combination with silicates. My object at the meeting of July 14th, was to place the *photographer* on glass, on porcelain, &c., in something like the same position with regard to *neutral tints* and colours in which the *un-photographic printer*, painter, and stainer had long been. This I did by calling attention to the metals calculated to give the requisite tints and colours, and showing at the same time a variety of photographs, with the metals recommended—cobalt, copper, iron, manganese, &c., combined in various ways, (with explanations of processes,) as proofs of the perfect possibility of producing photographs containing the materials which I recommended, supplying thus the hitherto wanting link in the chain. Want of proper appliances and convenience for the purpose, &c., prevented my having the actually burnt-in specimens to show, but though there may be room for much further experiment as to the minutiæ of manipulation, composition of cements, fluxes, enamels, &c., the daily experience of burning in the un-photographic pictures and prints, is quite sufficient to settle the possibility of burning in the photographically prepared prints with the same materials, and were it not by rough experiments which I have been able to make, are quite enough to show the possibility of burning in photographs in a variety of ways, from paper as well as other films, with some variety of the metals recommended, as well as with silver. In burning in these we do not employ any *vitrifiable* mixture to form a glaze above the photograph. The silver, or silver and gold photographs, do appear as would be expected, to burn in much more readily, and at a lower temperature than most or any of the others. With most metals it seems to be necessary, unless we have a vitrifiable glaze above the photograph, that the surface which it is to be made to amalgamate with should be exposed to sufficient heat to bring it into a state of fusion, or something very near it, and this, of course, necessitates that in burning into glass, in this way, the glass should have previously received a coating of some vitrified (or vitrifiable) mixture, glass or enamel, which will melt or soften sufficiently at a considerably lower temperature than the glass itself. In burning in with various descriptions of pottery, porcelain, tiles, &c., further experiments can alone decide whether the photograph should be applied to the tablet in its unglazed or in its glazed condition; whether any vitrifiable mixture (and of what exact composition) should be applied to the photographic film of collodion, albumen, &c., after it is printed on, or to the film of paper, after it has been attached to the tablet. Gum appears to answer pretty well for the cementation of the paper photograph to the tablet, and it may be that the mixture of a little nitre or borax, &c., with the gum solution, or the soaking of the paper in some such salts, or both, may turn out to be an improvement where we do not intend applying any vitrifiable mixture to the paper after its attachment. In experimenting in a common fire, the sudden combustion and draught is very apt to carry away the paper entirely—the more gradual application of heat in a furnace, &c., will avoid this. To prevent the breaking-up and detachment of the paper photograph, a very good plan will probably be, to keep it flat by a heavy or loaded slab of stone, glass, metal, or other material, till carbonization is absolutely complete, and then, it may be, remove the weight, and then either apply a vitrifiable mixture, or trust to heat and the softening of the surface enamelled and attraction to produce amalgamation. The application of the vitrifiable mixture to the photograph, after it has been once in heat, unless either the plate has been cooled before the weight has been removed, so as to retain the carbon of the paper or other film, or unless we first again expose the plate to a heat sufficient to cause a sort of superficial attachment before we apply the final glaze, is hardly to be recommended, as, where practicable, it would be very generally without an object. In the case of each description of tablet, experience of the already trained workman, with all his appliances at command, will very soon decide whether it is better to trust entirely to the glaze below, or partially or entirely to a vitrifiable application above the photograph; and there are many other points of detail which his experience can alone, and will very readily decide, *e. g.*, as to the best cement, where our photograph is attached to the tablet after printing, as I have recommended with paper, &c. &c. I have considerable hopes from collodion. In many respects paper has advantages. I have tried various organic cements. As to the production of any required shade of colour or neutral tint, we have to set to work on the same principle as we have described for unburnt photography, only devoting our attention entirely to the colour which the picture will assume after, and not to that which it will exhibit before burning, and regarding, of course, the cyanogen—radical salts—

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* See my February paper in *Photographic Notes*.

merely with reference to the heavy metal contained in the radical, the ferro, and ferrid-cyanides, being thus valued on account of their iron, and the cobalt cyanides for their cobalt, &c. It is likely that both in neutral tints and in coloured photography, the cobalt, cyanides, and other salts, which I have noticed, &c., of comparatively small value in unburnt photography, may be here among the most useful agents. Cobalt is not only valuable for the blue colour of its silicate combinations, but for the formation of many intermediate colours with other metals, and of most valuable neutral tints and very near approximations to black with manganese, copper, iron, &c. Such mixtures of metals are easily produced either by an original mixture of the metals in the sensitizing solution, by a judicious after-application of metallic salts, or of the metal organic salts. Both in copper, iron, cobalt, chrome, nickel, and manganese, which are the metals I have principally directed my attention to, there seems to be no difficulty in fixing any number of them, and in almost any required proportion in one photograph. To attempt any *detailed* enumeration of all the ways in which this might be done (besides being in some degree a repetition of what I have given in my former letter, would be filling pages to little purpose, as the general principle of acting once laid down, and the most desirable chemicals enumerated, the applications become sufficiently evident, but we may notice generally, some of the principal ways of securing the presence of a plurality of metals (or one metal) in the photograph.

I.—In the first stage, that is before the metal organic development, this may be accomplished. 1st.—By introducing one or any number of the metals (not including the chrome of the chromic acid) at the very commencement of all, into the solution used for film or paper sensitizing, this being managed either by employing a bath, containing at once an alkaline-bichromate, and a salt or mixture of salts of the metal or metals desired, or else by dissolving the oxide or oxides, or neutral chromate or chromates of the same in solution of chromic acid (or the chromates in sulphuric or other acids), giving thus a bath containing metallic bichromates alone. 2nd.—By sensitizing with the bichromate of potash, soda, or ammonia (or some of the complex alkalis) alone, and not applying the metal or metals till after printing, as practised in the ink process of M. Sella, lately published. In the case of some metals, as copper and cobalt, it appears pretty indifferent in which of these ways we introduce them in this stage; but this not always so. With iron, for instance, the dark solution after precipitation from protosulphate and bichromate of potash does not answer well.

II.—In the second stage we have the choice of a variety of metal cyanides, &c., for the expulsion of the chromic acid. The iron cyanides and cobalt cyanides act readily. It must be recollected, however, that for burnt-in photography we do not gain in atomic quantity of metal by this developing, unless we mean to follow it up by the application of the final metal bath, corresponding to the iron bath in the cuprotype as described, and still farther, that unless we use for the development a salt of a metal cyanide or other metal containing acid or radical, that we actually lose metal by the expulsion of the chromic acid. The object in going through this second stage for porcelain printing is therefore generally to substitute some other metal for the chrome, and to supply by the proportion of the alkaline metal cyanide retained by the image, a basis for the introduction of additional metal in the third stage.

III.—As to third stage, the last opportunity of introducing metal by the final toning bath, we must depend here either altogether on the alkaline metal cyanide retained, or else trust wholly or partially to the superior affinity of the metal in the toning bath for the metal cyanogen radical in the picture. Cobalt and copper, for instance, will, in many cases, replace iron with ferro-cyanogen and cobalt cyanogen, and iron or uranum will supplant other metals in other cases. We need hardly enlarge upon the perfect command which the power of introducing metals at any one or in all of these stages gives us over the result. Where we wish a photograph containing one metal alone, we might either accomplish this by the expulsion of the chromic acid, by an alkali, alkaline carbonate, or by a salt of some organic acid, *e.g.*, the mellonide of potassium, or what may be generally found much preferable in many respects, secure its isolation in some such way as the following. Develop a washed chromate of cobalt print by cobalt cyanide of potassium; wash, and tone by cobalt bath, with iron we may adopt the same system, substituting the ferro-cyanide of potassium; however I dont think that iron alone in this way is likely to be so very useful. The developing of an iron print with ferro-cyanide or cobalt-cyanide, and toning with iron, copper, or cobalt, might give more useful results, but there *are* serious objections, however, to the introduction of iron in the first stage at all. I have already, I think, mentioned that the mixture of the protosulphate with bichromate of potash does not form a good bath (possibly the sulphate or other salt of the higher oxide or solution of it in chromic acid might answer better), and even where we print first with an alkaline, bichromate alone, there is sometimes a little difficulty to get perfectly clear lights, owing to iron remaining in them (probably from its peroxidation by air, or precipitation by other impurities in the water. To prevent this I have used a mixture of a very little acid with some amount of success, still there is a risk of the acids attacking the chromate of iron of the picture, and on this ground it appears better to commence with another metal, as copper or cobalt, and to leave the introduction of the iron till afterwards, either by means of the ferro-cyanide bath or by the final toning bath, or we may introduce it in both of these stages in one print, as in the cuprotype process. This ought to be a good process, and the experiments which I have been able to make, though giving nothing like presentable results, gave very good promise, and sufficiently indicated that even a paper cuprotype, with no more metal in it than can be easily got, will give an effective burnt-in print. I have burned it into glass with enamel or flux below, even without any vitrifiable mixture above the paper, the best results being obtained when the heat for burning in was pretty quickly got up. Among the processes on this model (or formula) likely to give good results may be named a chromate of copper prints developed in the same way, but toned *by cobalt* instead of iron in the final bath, or perhaps a chromate of cobalt print developed by iron, and toned by iron or by copper (or uranium or manganese). When our final toning is done by iron I have generally used, and believe there is advantage in using, a little acid mixed with the water with which the print is afterwards washed (as well as a little added to the bath). There is not the same risk incurred here as by its use in washing the print in its chromic stage, as the metallic ferro-cyanides and their allies are not nearly so easily acted on in this way as the chromates are.

Manganese is a metal likely to prove highly valuable in burnt-in photography, particularly in union with cobalt, iron, and copper. I have obtained photographs containing these differently combined in various ways. On the whole the most successful of my manganese experiments have been those in which I stopped at the first stage, a very good dense photograph containing manganese and chrome being obtainable on paper prepared with bichromate of potash and sulphate of manganese. I have managed to introduce iron, copper, and I rather think also cobalt into this by subsequent actions: but perhaps as good a plan with manganese, where the presence of chrome is not objectionable, is to mix a little sulphate of cobalt with the bichromate of potash, (or ammonia,) and sulphate of manganese used in preparing the paper, (or film,) and the chromic acid might be at least partially removed by the application afterwards of an alkali or carbonate, &c. It is probable, but my experiments do not enable me to speak with any confidence on this point, that manganese might also be employed in some cases as a final toning bath.

As to photographs for burning in colours, chromate of nickel, (Mr. Bingham's chromatype,) a very distinct print might be likely to answer well, and the addition to it of cobalt, easily made, might be an advantage. Chromate of silver, (Mr. Hunt's chromatype,) with the addition of cobalt, might also give a good green, as might a cobalt-cyanide of iron, or cobalt-cyanide of silver. As to purples, tin and gold, with or without cobalt, might come into play; and tin, chrome, and cobalt might possibly answer; uranium also, along with cobalt, copper, nickel, and other metals might not improbably give good results. Chromate of cobalt, and I have already alluded to cobalt-cyanide of cobalt for blue. Let the photographer on porcelain only study the means I have pointed out of fixing the different metals, and then take up such a volume as the "Porcelainier Fayencier et Potier de Terre, Paris, Libraire Encyclopedique de Roret," or any similar treatise, and find what mixture of oxides he wishes to obtain, and he need not remain long in difficulty as to obtaining photographs containing most of them.

It must be observed that, though I have now been directing attention principally to processes of which the chromates are the basis; there are many other processes which may enable us to fix a variety of metals and their combinations for the same purposes. The prints formed by solarization of papers containing ferrid-cyanide of potassium or ammonium, (or ferro-cyanic acid,) would, but for their slowness of production, be also a very convenient basis, giving pretty clear prints, and the iron of the base, after washing, being replaceable to a certain extent, more or less, by another metal or metals—copper, cobalt, or nickel for instance. It is likely also that by the cobalt cyanides, we might replace the ferro-cyanogen with cobalt-cyanogen. Chrome-cyanides and cobalt-cyanides are little acted on by sunshine by themselves. Prints produced by developments of ferric salts might be tried, though I have got no very clear prints in my trials in that direction, gold and silver excepted. To return to the chromate prints; in point of facility of getting a print perfectly clear in the lights, I am not sure but what the method of printing in the first instance, with a bichromate of ammonia, soda, or potash alone, has often been in other metals, though not so very materially as in iron, the advantage over other forms of the first stage. I have found it answer well among others, with copper and with cobalt, and for one application of burnt-in photography, it will be by far the most convenient process—I allude to where we intend to produce on one piece of pottery, tile, or glass, a design containing more than one colour or tint. In this case, having sensitized the film with the alkaline bichromate, we might even print the whole design at once from one negative, and regulate the colours of the different parts by the application of the solutions containing, and consequent precipitation of different metals in different parts of the design or picture. We have here obviously the same choice as elsewhere of the three different stages for the introduction of each metal, the same choice of chemical agents, metal salts, metal cyanides, &c.; with these successive applications also given us, the power of depositing any required mixture of metals.

The separate actions on the different parts of the film might be secured in various ways—by forming cells on the surface, if tolerably level for the reception of the different solutions, or in any case by immersing the whole in the different baths, having previously taken the precaution to protect against the action of such bath, by a coating of gutta percha or other easily removed impervious substance, the parts not wished to be acted on by that particular bath; (might it be possible that in this or other ways some approach to natural shading of colours could be obtained?)

A few words as to the applications of burnt-in photography How desirable to have portraits of our friends, or of historically interesting characters enlarged from small pictures, and fixed imperishably on slabs of porcelain, tiles, or other vitrified or semi-vitrified composition, or on enamelled plates of copper, stone, or brick. What an interesting gallery such portraits would form. They might, of course, be hung up like ordinary portraits, but by far the better plan would be, either by fixing them into panel frames in the walls, or building them permanently into the stone-work of our public buildings and galleries. How important thus to be able to decorate our public buildings with absolutely permanent memorials of the great men of our and all succeeding ages; and both public and private buildings with similarly imperishable landscape photographs, as well as copies of all that is most interesting in the way of sculpture, painting and engraving, either of fair size, or of any size suitable for their position.

As to copies of paintings, there are difficulties from colour, though these may no doubt be, in a great measure, got over, either by making our second negative from a judiciously touched positive, or by having the picture first translated into light and shade in china ink or sepia, by the original or other competent artist. The system of photo-chromo-lithography might enable us to give an approach to permanent reproduction in colours, if found practicable, and without colours. Photo-lithography in pictures of oxides, giving good neutral tints, might, to a considerable extent, take the place of the true burnt-in photography for many classes of subjects.

C. J. BURNETT.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I think that most photographers will agree with me, that for stereoscopic negatives, and for landscape photography in general, no process is equal to that of wet collodion, and especially for working on the spot. I have tried the various plans proposed from time to time in your *Journal* and others, and with your permission will now let your readers know the result. My first attempt was with a box intended to unite camera and dark chamber together, the lens being fixed in front with the developing tray, bottles, &c., in the bottom; a movable slide carried the prepared plate at top, the operator peeping in at the end through a small glass window, the arms being inserted in sleeves with elastic bands. When not in use the top and bottom folded up against the front forming a snug parcel. This would do very well on a calm day with no one to interrupt you, but on our coast that was seldom the case; then with occasional accidents, such as throwing down the bottles, the wind blowing the sleeves on the prepared plate, &c. &c., condemned box for all practical purposes. This box I now altered by making the top and bottom fixtures, and increasing its width; this made it larger and more cumbersome, but better adapted for work. I next tried a box on Mr. Osborne's principle, only making the sleeves fixtures; this proved the best of the three, and for stereoscopic plates, and 7 in. + 6 in. plates nothing could be better; yet in any kind of box where the hands have to be inserted in sleeves much valuable time is lost, and there is great danger of spoiling the chemicals. This is not the case in using a tent, and I have just completed one that answers every purpose of a dark room, is put up and ready for use in two minutes, and will not cost more than 14s., stand and all; the weight a mere trifle, not more than seven or eight pounds, and it will take no more room in a carpet bag than an overcoat, and as any one can construct one with very little trouble and expense, I will describe it in your next number, sending a print from a negative obtained by its use, also the time required to get the negative, &c., &c.—Yours truly,

THOS. GULLIVER.

Fisher-street, Swansea.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Mr. Bullock's letter of the 9th current I have read over.

I do not think it necessary to say anything farther besides what has been said in my former letter in answer to his, except to renew my former assertion that Mr. Bullock never communicated to me, nor gave me the least hint tending to lead to my discovery of taking photographs on cloth and leather, and I have only further to refer you and your readers to Mr. Bullock's advertisements in your *Journal*, where he all along from June last up till the 15th inst., continues to advertise as taking photographs simply on "cards," but, for the first time, on the latter date after the word "card" he adds "&c. &c."

My discovery of taking photographs on cloth and leather was made in August last, and I communicated it to Mr. Bullock in the latter end of the same month. You will see, then, that it is only after the elapse of three months from the date of my communication to him that he comes forward, for the first time, in the last number of your *Journal*, published on the 15th instant, with "Another advance," viz., the addition of "&c. &c." to his advertisements. Does not this prove that he has taken the benefit of my communication to him?—I am, Sir, yours respectfully,

W. SMITH.

Tain, 26th December, 1857.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—A great admirer of the paper processes, from their convenience in out-door photography, I have hitherto neglected the deservedly more fashionable branch of the art, *i. e.*, collodion. In consequence of the late improvements made in the dry collodion plate, I have determined on relinquishing my old and long tried friends in its favour, of course having first to perfect myself in wet collodion. As Editor of the *Liverpool and Manchester Photographic Journal*, may I request your kind solution of the two following queries in its next number:—

1st.—In the formation of the *negative* collodion bath, is the *fused* or the *re-crystallized* nitrate of silver the most to be preferred?

2nd.—In the acidifying of a neutral or a slightly alkaline *positive* collodion bath, is the acetic or the nitric acid the best for the purpose?

Yours truly, A WOULD-BE COLLODIONIST.

Teignmouth, Devon, Dec. 28th, 1857.

[1st.—The fused; unless the re-crystallized nitrate can be obtained free from nitric acid in excess. Both ought to be equal in properties: *chemically they are identical.* 2nd.—Use very dilute nitric acid.—Ed. L. & M. P. J.]

ANSWERS TO CORRESPONDENTS.

B. T.—To work well under all circumstances, a photographer should have a set of lenses varying as to rapidity; size, and focal length. You are quite right; photography, fully carried out, is an expensive art; but that need deter no one from accomplishing what is evidently within his power. A landscape lens by Ross, for about five guineas, and a small portrait combination by the same maker, at about a cost of six guineas, will enable you to do *all you can wish for* in the way of "recreation." If you are in earnest, do buy *a good lens.* Ross has a smaller landscape lens, which costs about seventy shillings. Those who "cannot afford" this sum must never expect to be anything but dabblers in the art.

Photo.—The explosiveness of a sample of pyroxiline is not a reliable test of its fitness. Mr. Hardwich has prepared a soluble cotton, which is very explosive. We must be content to "wait" before we can hope to see a reliable list of characteristics relating to disputed photographic points. Influences which at first appear to us all to be trivial, turn out to be all-important as we advance in our experiments.

A Subscriber.—We want a grand field day with the best of the tents, to determine on those most suitable for general adoption. They should be tried, like reaping machines, in various localities, and under difficulties.

Mr. Moule in our next. Mr. M. desires to say that profiles taken by his light were exhibited, simply because he prefers profiles.

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REDUCTION IN PRICE OF PHOTOGRAPHIC APPARATUS.

THE FIFTH EDITION of Horne and Thornthwaite's Catalogue of Photographic Apparatus and Materials, with revised list of prices, will be forwarded to any address on receipt of two postage or receipt stamps.

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Agents for the Liverpool and Manchester Photographic Journal.

THE PHOTOGRAPHIC COMPANY OF IRELAND require a number of ASSISTANTS to produce Portraits, Views, and Stereoscope Pictures, on Glass and Paper. Terms liberal.

Applications, enclosing specimens, to be sent to Francis S. Beatty, Telegraph Lodge, Parnell-place, Dublin.

The Liverpool & Manchester Photographic Journal.

New Series. No. 2, Vol. II.—JANUARY 15, 1858.

An explanation is due to our readers for a day's delay in the publication of this number. This *Journal* was started, and for a considerable period successfully edited and carried on, by members of the Liverpool Photographic Society, among whom may be honourably mentioned, Mr. Forrest, Mr. Corey, Mr. Frank Howard, and Mr. Berry. It has always been identified with, and been the organ of, the Liverpool Society,—a Society which, through its active members, has done much to raise photography from the "low estate" in which they first found it, to a distinct place amongst the arts and sciences.

In our last publication we referred to the proposed amalgamation of the Liverpool Photographic Society with the Historic Society of Lancashire and Cheshire. The meeting of delegates from both Societies, to arrange the terms of amalgamation, having been appointed to take place late in the evening before our usual day of publication, we thought it desirable and only courteous to the gentlemen who had been so long connected with this *Journal* to be the first to report the terms of amalgamation. Hence our resolve to defer our publication a day later. It has been thought desirable, however, by the delegates,—and we have reluctantly acquiesced in the request,—to refrain from publishing the terms settled at the meeting, till they have been submitted to special meetings of each Society called for that purpose. We may, however, say that the delicate negotiations entrusted to the delegates from the Photographic Society have been satisfactorily carried out. Although the title of the Liverpool Photographic Society will be lost in that of the Historic Society, yet its identity as a working body will be preserved intact. A photographic section of that society is to be formed, and an evening will be set apart each month, at which specimens will be exhibited, a paper read, and the usual discussion take place. We are glad also to find that the interests of this *Journal* have been secured, so far as the reports of meetings are concerned. Our reporter is to attend, and the papers read are, as usual, to appear in the *Liverpool and Manchester Photographic Journal.*

We again repeat our regret that a society which was among the earliest formed, and which has so carefully watched over the cradle of the art, should, from any circumstances, lose "a local habitation and a name." However, we rejoice to know that the business tact of the gentlemen appointed to arrange terms has been successful in securing the unfettered action of its energetic members.

In another part of our impression will be found a letter from Mr. Forrest, of Liverpool, which raises more distinctly into importance the subject of the glazing of photographic rooms. This letter arises from a foot-note of ours, in which we expressed an opinion that the whitest glass should be sought for and used for photographic rooms. In speaking of the *whitest* glass we mentally excluded such glass as is manufactured by the aid of manganese, for we thought such glass was exploded since Faraday's experiments, which long ago shewed that the light, or light and air, caused it to become purple. Now because we did not name this changeable glass, Mr. Forrest wishes to attach to us the absurdity of recommending such a glass. This is not fair, especially since we took particular pains in our last number to particularize the whitest British sheet-glass of a certain maker, who, by the way, has nothing directly to do with this case, as being our standard of permanent white glass. We still think, and repeat more firmly than ever, that it is unphilosophical to glaze a photographic room with anything but the whitest glass we can procure (must we again add of the permanence of which we are *reasonably* assured?) The light by which we are enabled to see objects is made up of all the colours, and the nearer our photographic tablet comes to the power of receiving impressions from pure *white light*, the more truthful must our photograph become. It is not a sufficient answer to say that the rest of the rays below the blue part of the spectrum are inactive. This is an assumption, for we do not know the exact modifying influence of a mixture of rays, and a thoughtful chemist and man of science of our acquaintance is inclined to think that our present photographs are imperfect in all respects, from the very fact that the blue rays act with greatest force upon our photographic tablets. This is a wide field and we shall not further enter upon it here; however it may serve to shew that we are not going to have this matter decided in a dogmatic way just yet. For experimental purposes certainly white light ought to be used, and for this blue tinted glass would be fatal. We know well the *convenience* of a blue medium. M. Claudet and Mr. Beard both had a blue room, and we made experiments for Mr. Talbot under a waxed blue silk, so we are not writing at hazard upon this subject. On principle blue glass has been rejected, and we venture to foretel that the time will come when it will be pronounced unphilosophical to use such glass, however convenient or agreeable it may be. With us sound principles are far before either profit or convenience, and unless this point be granted us we can never debate on equal terms with Mr. Forrest or any other gentleman who may do us the honour to differ from us. Now to the point of Mr. Forrest's letter. Mr. Forrest admits that he put white glass into a photographic room at Liverpool, which altered in twelve months. Upon this we remark, had he known of Faraday's experiments he would have paused ere he took the whitest glass irrespective of the history of its manufacture. The next point is that of plate glass: none is so stable as that of Ravenhead, and this glass is of a blue tint. Aye of *plate* glass, but, putting expense aside, is plate glass as durable and unchangeable as British sheet? If that can be answered in the affirmative, which we doubt, we still reply that the whiter glass ought to be used, always, of course, premising that we have not manganese glass. But Mr. Forrest offers us stout-looking evidence. He has examined the glass in York Minster and he finds that the blue *coloured by cobalt* (As ascertained by analysis?) remains unchanged, after a lapse of two centuries! So, Mr. Forrest either saw this glass when newly put in, or—has no means of comparison by which he can convince us that this glass is unchanged. But he turned back the lead. This mode of investigation is not sufficient; it assumes that the deepening of tint spoken of by the *practical* men we relied upon, and against whom Mr. Forrest irrelevantly utters a sneer, is due entirely to light. This position we attack as being destitute of proof. To say nothing of the light which in two hundred years can be reflected within the glass itself, the constant admission of atmospheric oxygen may have (we do not say has), for anything Mr. Forrest knows, darkened the blue which he vouches for is as good as when put in two hundred years ago. Is such evidence to pass amongst careful men of scientific reputation? No; and although Mr. Forrest should turn out to be quite right in asserting (what we cannot on our own knowledge deny) that glass coloured by cobalt is unchangeable by time and light, his merit will be only that of a lucky guesser, for he has no philosophical evidence that such is the fact. So his remarks about undoubted facts and the erroneous views of my practical informants remain of the same value. We shall be glad if Mr. Forrest is correct, for it will be something to find any medium which light and time cannot readily alter. Thus we dispose of the attempts made to render nugatory our remarks and cautionary statements. We admit the convenience of blue glass in fine weather, but deny its being philosophically allowable, and we counsel all whom it concerns, to urge on the glass maker the necessity of using such materials as cannot by any possibility impart colour to glass under any circumstances of time or exposure. And while we do this, we also request them to bear in mind that, for certain purposes, we should be glad to have a glass which will admit the greatest amount of the most refrangible rays, with the least amount of actual light. The two questions are distinct, and must not be confused as they have hitherto been. Whether such new kinds of glass can be made to be permanent time only can shew. The Messrs. Chance's glass, obtained through M. Claudet, has the merit of being made of simple well-known materials, and is not a glass of yesterday, as Mr. Forrest intimates, in a paragraph of his letter, which we have, from its irrelevancy, omitted.

We have inserted M. Claudet's views and statements respecting the variations of foci in photographic lenses. We wish that some persons of skill and leisure would keep a record during the year of any fact bearing upon the subject. M. Claudet is two experienced a hand to be totally mistaken in this matter. At all events the source of discrepancy ought to be pointed out. M. Claudet asserts that the foci for the same distance vary with atmospheric changes, and that it is necessary to ascertain approximately the amount of variation during the day. This affects our practice, and ought to be settled.

The interest which attaches to M. Niepce's experiments, in which he appears to perform that hitherto supposed to be impossible feat of bottling up light and its allies, renders of fresh importance the experiments of Möser, of Königsberg. At Mr. Cottam's suggestion, we print Möser's propositions, as they appeared in the *Comptes Rendus* of the Paris Academy of Sciences.

We acknowledged in our last the receipt of several prints obtained by the processes mentioned in Mr. Burnett's various communications. Their resemblance to silver prints has surprised us. Still there are distinctive features, which we trust to see made available. We must not promise too much, but we do not intend to let this summer pass away without repeating certain of Mr. Burnett's experiments, with a view of introducing them for special purposes.

Mr. Mann's paper on the oxymel process is to us specially interesting, from the fact that his pictures obtained by it, are pronounced to be free from those harsh contrasts of light and shade, which disfigure most of the pictures taken by the dry processes. That it is not a rapid process is to be regretted, but we prefer harmony of tints to rapidity without it.

The meeting of the deputation appointed by the Members of the Liverpool Photographic Society, to confer with certain Members of the Council of the Historic Society, on the subject of a coalition of the two Societies, took place at St. George's Hall, on the evening of January the 14th. During the discussion, considerable stress was laid on the accession of strength that the Photographic Society would derive from this fusion, as there were a large portion of the members of the Historic Society desirous of being initiated into the art; and, on the other hand, there were a vast number of archæological specimens, which could be better represented by the acknowledged fidelity of the photographic art, than by any other known process. After much deliberation, certain subjects for consideration were agreed upon by the several members of the deputation, subject to the approval of the main body of the Photographic Society. These will be submitted to them at a Special General Meeting, to take place at half-past seven o'clock on Tuesday evening, the 26th of this month, at the Royal Institution, Slater Street.

The Photographic Society of London will open their fifth annual exhibition of photographs early in February, in the new gallery, at the South Kensington Museum.

MANCHESTER PHOTOGRAPHIC SOCIETY.

The monthly meeting of this Society was held on the 6th instant, as usual, J. COMPTON, Jun., Esq., in the Chair.

Mr. E. MANN read the following paper "*On the Oxymel Process:*"—

In introducing the oxymel preservative process to your notice this evening, I may remark that I have really no new or original method to lay before you; and I almost fear that I have some small amount of prejudice to contend with, as some parties have objected to the process, because it is, as they term it, a "sticky process." There is no doubt that a satisfactory dry process is the one we all require, and that great progress has been made in that direction latterly, various excellent ones having been discovered; but, I think, it is still generally admitted that none of them have yet produced pictures equal to those obtained by wet collodion.

The oxymel process may be termed a preserved wet collodion process, so as to distinguish it from the dry methods. The application of honey was the first means of all others discovered, by which the sensitiveness of collodion could be retained for a lengthened period, and there are three persons, I believe, who claim to be its originators, namely, Mr. Shadbolt, Mr. F. Maxwell Lyte, and M. de Poilly, about June, 1854; but the credit seems principally due to Mr. Shadbolt, his plan being the then best for retaining sensitiveness; and Mr. J. D. Llewelyn has since modified and brought it to its present state, by adding acetic acid to the honey, and entirely washing away the silver. The pictures which Mr. J. D. Llewelyn has obtained are very beautiful, several were to be seen in the late Art Treasures' Exhibition, and perhaps are remembered by most of you.

All the various recognized processes have some peculiar advantages and disadvantages, and I consider that the process now under consideration is capable of producing such beautiful results, that I feel I shall hardly be trespassing upon your time this evening by calling your attention to it, particularly as I have not heard that any one in this town has yet given it much attention.

I commenced the oxymel process at the time collodio-albumen was coming into notice, and have practised the latter during last winter and summer, and have also tried most of the dry processes, but have again returned to the oxymel, having been seldom able to obtain such satisfactory pictures by the other methods. Before entering into the details of manipulation, I will state what I consider to be the advantages and also (I regret I should have to add) the disadvantages of the process. There is more certainty in this than in any of the other processes I have tried. The method of preparing the plates is very simple, and easily and quickly managed. I have not yet tried the limit of their keeping qualities, but have exposed some more than six weeks after preparation, and not developing until a week afterwards, making a period of seven weeks, without finding any signs of deterioration. The development is easy, occupying about five minutes, or more or less, according to the quantity of silver used in the pyrogallic solution: but the greatest advantages of all; and the most important are, that the negatives are very intense, always free from fogginess, brilliant in the shadows, and possess the peculiar softness and half-tone of wet collodion. In fact I consider that it possesses all the advantages of wet collodion (except sensitiveness), without many of its difficulties; for instance, all photographers know the liability of wet collodion to fog or solarise, and the difficulty of getting intensity. In taking still objects I always prefer to use an oxymel plate, however near my operating room.

Perhaps you may think I have been a little too enthusiastic in expatiating upon the merits of this process; but I must now state its chief and only serious defect, namely, want of sensitiveness—taking from ten to twenty minutes' exposure under favourable circumstances, with a landscape lens of fifteen inches focal length, two and a-half inches diameter, and half an inch stop. However, if the plate is not required to be kept much more than a week, the sensitiveness of collodio-albumen may be obtained by leaving a trace of silver on the film, as I will hereafter mention. Mr. Llewelyn and some others estimate the exposure required as only about five times longer than fresh unwashed collodion. I have, however, found it rather more, though no doubt much depends on the age of the collodion, and I usually prefer old collodion, which may account for the difference.

I will now describe my method of preparing the plates. For convenience, I have four dipping baths, the first containing the nitrate of silver bath, the second and third rain water, and the fourth the oxymel.

I cover a plate with negative collodion in the ordinary way, and render it sensitive in the usual negative bath solution; afterwards I pass it through the two water baths, so as to remove the nitrate of silver; I then dip it, after draining a little, in the fourth bath containing the oxymel, draw it up once or twice, so that the oxymel may mix evenly on the surface of the film, then place the plate upright on blotting-paper against the wall to drain for about half-an-hour; afterwards it is as well to stand it on one of the lower corners only on the blotting-paper, so as to remove any of the oxymel which may remain at the lower part of the plate; it will then be ready for the slide or dark-box, which must be well varnished to prevent staining the plates.

After exposure, dip the plate in water, which will cause the developing solution to flow evenly; or, if you like, pour on the pyrogallic solution without first dipping in water, as there is no difficulty in getting it to cover the film; pour on and off two or three times, and then add about one or two drops of silver (of the same strength as the bath,) to the dram of developing solution, or more if you wish to develop quickly, taking care, of course, that no deposit of silver is thrown down in the solution, or it might injure the film; keep continually pouring on and off carefully, so as to prevent any deposit which may form in the developing solution from settling on the plate; after sufficient intensity is obtained, wash with water by pouring from a jug, and fix with cyanide of potassium or hyposulphite of soda. I much prefer the cyanide, as the negative then requires less washing afterwards than when hyposulphite is used, and consequently there is less danger of injuring the film. Prepare the oxymel as follows: To one pound of honey add sufficient water to reduce it to about the consistency of oil, heat in a jar in the oven, or in a pan of hot water; then add two ounces of glacial acetic acid, and carefully filter until quite clear and bright.

Instead of using a dipping bath for the oxymel, it may be poured on the surface; this I used to do for some time, but was then frequently troubled by bubbles of air. If, as I before mentioned, the plates are not intended to be kept very long, and greater sensitiveness is desired, the only difference in the preparation is, that the plates instead of being washed in plain water are dipped in a weak silver bath, containing about one ounce of nitrate to twenty ounces of water, previous to the immersion in the oxymel.

The negatives, some of which I will shew you, are generally of a rich dark brown colour, which I believe is attributable to the honey supplying the organic element so necessary to an intense development. I often add a little honey to the developer, which always produces an orange brown tone to the negative, and which colour, of course, is the most effectual one for obstructing the light in the after process of printing.

I will now mention a circumstance which rather surprised me when I first discovered it, namely, that the same bath, though producing excellent pictures with oxymel, would neither give a good positive or negative with a fresh and unwashed collodion plate. This shews that no very great nicety is required in the bath.

I consider a little acetate of silver in the bath is very advantageous, giving greater intensity and ensuring the absence of free nitric acid, which is apt to accumulate by using old collodion containing free iodine. I have sometimes produced negatives in an old bath of a greenish colour; but upon forming acetate of silver in the bath, have obtained the usual dark brown tone again. My plan is to add a few grains of carbonate of soda to the bath, until faintly alkaline, and then render the bath slightly acid with glacial acetic acid, and so forming acetate of silver. The developing solution I prepare with a larger proportion of acid than is usual, namely, the same weight of citric acid as pyrogallic. As it is necessary to add a considerable quantity of silver to the developing solution, a large amount of acid is required to prevent the silver being at once deposited, and the solution becoming muddy. The developing solution may be used until it becomes as dark as port wine, and until it begins to deposit the silver.

In conclusion, I beg to refer you to the *London Photographic Journal*, for 1856, where you will find several interesting communications by Mr. J. D. Llewelyn, the discoverer of this neglected though valuable process.

After reading the above, Mr. Mann developed a negative taken some days previously, and exhibited a number of negatives and positives, which were much admired for a peculiar softness and delicacy, and the absence of those violent contrasts of white and black which characterize so many of our photographic productions.

There was a considerable discussion, after the paper, amongst the members, as to the value of this process; the results were considered very satisfactory, but the length of time required for exposure appeared to be a great objection to it. Mr. MANN stated that he generally used that process, even when he had a dark room at hand, being so certain of the results, and having no difficulty in producing the requisite intensity.

Mr. SIDEBOTHAM exhibited a positive photograph on glass, taken with the revolving lens cap exhibited at a former meeting. The exposure might be said to be instantaneous; the entire time of revolution of the cap only occupying one-twentieth part of a second. He stated that by this means you might get more natural expression in photographic portraits, such as is impossible when a person has to sit even three or four seconds; this was exemplified by the specimen produced.

Mr. MABLEY exhibited some prints by Mr. Sutton's development process; some had been exposed in the pressure frame till the image was faintly visible, and others till almost dark enough for sun prints, and yet the finished prints exhibited little difference; those exposed a long time required toning after the development, the others did not. Mr. Mabley also stated that he used paper dishes for development, but they were simply ordinary porcelain dishes with sheets of paper to line them, a fresh sheet being used every time.

A MEMBER called attention to the fact, that albumen prepared for the collodio-albumen process with ammonia, would not deteriorate by keeping. Some prepared nearly two years yielded as good results as ever, and does not throw down any deposit, as that prepared with acetic acid or fermented does.

Attention was called to a curious appearance in certain specimens of photographs that were exhibited, in which the edges of the trees or buildings were bordered by a narrow streak of light whiter than the sky, and in some cases very brilliant. A conversation took place relative to the peculiar phenomenon, but it was not satisfactorily explained.

The thanks of the Society having been presented to Mr. Mann for his interesting paper, and also to the Chairman, the meeting adjourned.

The next meeting will be held on February 3rd, when a paper, "*On the Artistic Arrangement of Photographic Landscapes,*" will be read by James Mudd, Esq.

LONDON PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting of this Society was held on the evening of Tuesday, the 5th instant. The only subject of importance brought before the members was the following paper by T. F. HARDWICH, Esq., "*On the Printing of Stereoscopic Transparencies:*"—

Some apology is perhaps needed for my appearance before the Society this evening, inasmuch as I have nothing very novel to communicate. The subject of my paper is, however, one which posesses a general interest, and it has occurred to me that I might, by bringing forward a few notes of some experiments I have lately made, open up a discussion, and elicit useful information.

Very fine transparencies have been taken by Dr. Norris's dry collodion process, but the plan which I intend now to advocate is the collodio-albumen of Taupenot. To work on dry collodion with uniform success the chemicals must all be in prime order, and although plates prepared by Dr. Norris himself have, as far as my experience has gone, turned out well, yet in the hands of the amateur, not quite sure as to the state of his solutions, the collodio-albumen is, I think, the more certain process of the two.

The remarks which I wish to make may be arranged under the following heads:- 1. The collodion for the process. 2. The albumen solution. 3. The aceto-nitrate exciting bath. 4. The water for washing the plates. 5. Exposure and development. 6. Fixing and toning.

1. *The Collodion.*—The evils which might be anticipated from the employment of an unsuitable collodion are—blistering, and a want of proper density in the image. In Norris's process it is particularly directed that the film should be in the condition termed rotten or powdery, in order to ensure a rapid and intense development. In the collodio-albumen process, however, I find that ample density is obtainable even upon a collodion which is more or less of the contractile kind. No difficulty will therefore probably be experienced in this respect; but as regards the other source of annoyance alluded to, viz., blistering of the film, the employment of a rather tenacious collodion is likely to favour its occurrence, and I was at first quite unable to use it from this cause. Since I have adopted, however, the plan presently to be noticed, of adding *acetic acid* to the albumen, the difficulty has in great measure ceased, acetic acid having the property of liquefying albumen, and modifying it chemically.

In the course of numerous trials, I think I have noticed that collodion iodized with the alkaline iodides acquires, by keeping, a property of sticking tightly to the glass, independent to some extent of any change in physical structure. This idea may be incorrect, but it is worth attention. A collodion can be prepared at once in the powdery condition, but a film of this kind will sometimes rise in blisters when the albumen has been laid on especially thick. Old and brown collodion which has become rotten by keeping, however, rarely or never blisters if common care be taken in cleaning and drying the glasses.

The sensitiveness of the collodion for ordinary camera work need not be taken into account in Taupenot's process. To prove this I selected two samples, one of which had only a straw-yellow tint, and gave a negative in five seconds, whilst the other was red and insensitive, requiring two minutes in the camera. When coated with albumen they took a nearly equal length of exposure.

2. *The Albumen Solution.*—Take of

Albumen	1 fluid ounce.
Water	½ „ „
Beaufoy's acetic acid......	½ „ drachm.
Iodide of potassium	3 grains.
Chloride of ammonium ...	5 „

First mix the acetic acid and the water; then add the other ingredients and shake together in a bottle for two or three minutes. The solution may be made to run through paper, but as it sometimes deposits a sediment on standing, it is better to set it aside for twenty-four hours, when the upper part may be drawn off clear with a siphon.

In the formulæ at first given by Dr. Taupenot, it was advised to add yeast to the albumen and to encourage fermentation, but this plan proved unsatisfactory. Ammonia was afterwards used which certainly has an effect in preserving the albumen from decomposition. Acetic acid, however, is, I think, better than ammonia when transparencies are to be made. It prevents, in the first place, the formation of those mucous threads which often increase in the liquid almost as fast as they are filtered out, and it is also, as before mentioned, a partial remedy for blistering, by its action in rendering the albumen limpid.

But of more importance still is the facility which this mode of preparing the albumen affords for the employment of a strong and quickly acting developer in bringing out the image. Gallic acid is usually recommended in the albumen process as being the most certain, and when the layer of albumen is dense and horny, this is undoubtedly true. In such a case I have seen pyrogallic acid fail, and yet the very same plate, when washed and immersed in a solution of gallo-nitrate, in the course of an hour yielded a good picture. Gallic acid does not react upon nitrate of silver so quickly as pyrogallic acid, and hence more time is allowed for a proper penetration of the albumen film. When, however, albumen properly liquefied by acetic acid is employed, pyrogallic acid may be used with certainty. Indeed it is superior in such a case to gallic acid, being a stronger reducing agent, and more likely to bring out the half tones.

With regard to the exact quantity of acetic acid which is admissible, I have tried various proportions, from twenty minims up to one fluid drachm to each ounce of albumen. The maximum quantity diminishes the sensitiveness, but good prints may be obtained by allowing a longer exposure.

In addition to albumen, water, and acetic acid the formula includes iodide and chloride. Experiments have been tried to ascertain the function of each of these salts, and I find that neither of them can be dispensed with. In the case of one sample of collodion which was quite powdery in structure and had become brown from spontaneous decomposition after iodizing, omission of the iodides from the albumen appeared to make no difference. Some of my best prints were taken on albumen containing chloride only, and with an equally short exposure; thus shewing that, in this particular instance, the iodide in the collodion beneath receives the invisible impression, although the development is in the albumen, and the image can be partly rubbed off with cotton wool. A repetition of the experiment, however, with other samples of collodion gave a different results. The pictures came out red and indistinct when the iodide was left out, but developed with great intensity when it was added. I think it probable, therefore, that the presence of iodide of silver in the layer of albumen may compensate for a defect in the collodion basis, and if so, it will give greater certainty to the process.

The chloride, which is used with the iodide, can scarcely be supposed to take any part in the formation of the latent image, but it has a colorific action in the development, imparting a brown tone, and lessening the tendency to that greenish-yellow often seen when iodides only are employed. Bromide acts in a similar way, but perhaps less decidedly.

3. *The exciting bath of aceto-nitrate.*—An old negative bath which has been laid aside as giving streaky collodion films, may be used for the albuminized plates, thirty minims of glacial acetic acid being added to each ounce. It soon becomes discoloured, but I do not find it necessary to use kaolin; all my pictures have been taken with a solution as dark as port wine. The plates may be immersed in the aceto-nitrate for two minutes.

Opinions differ as to the propriety of using one bath for the collodion and albumen. I have preferred to keep the two baths separate thinking that the pictures develop more clearly, and that the chance of blisters is diminished by so doing.

4. *The water for washing the plates.*—Ordinary filtered water will often succeed, but it is best to test it with nitrate of silver for chlorides and carbonates. In the course of the late summer, whilst spending a few days at the sea-side, I found that all the water contained lime-salts, the effect of which, in Taupenot's process used for negatives, was to produce over-action of light in the most exposed parts of the film. The skies developed grey and feebly, and were encircled by a dark line.

I see in the last number of the *Journal* an interesting paper by the Secretary of the Scotch Photographic Society, in which the same thing is noticed. Hard water will, no doubt, produce such an effect both on waxed paper and on albumen. On my return to town, I brought with me a bottle of the water and examined it. There was a trace of sulphate and a small proportion of chloride, but the principal impurity consisted of carbonate of lime. It required exactly one fluid drachm of a thirty-grain solution of nitrate of silver to precipitate the whole of the saline matter from a wine-pint of the water; and in twenty-four hours the deposit settled down clear without any filtering. This ready mode of purifying hard water might be adopted in case of necessity, but if carbonate of lime only be present, half-an-hour's boiling, or the addition of a little acetic acid, ought to be sufficient to remove it. The use of nitrate of silver, however, has the advantage of precipitating the chloride at the same time with the carbonate.

5. *Exposure and development.*—The plates are exposed in an ordinary printing-frame, either to a strong gaslight for five or six minutes, or in the open air for a few seconds. There will be no difficulty in hitting the right time, because, if the plates are under-exposed, it will be impossible to develope the dark shades, and the pictures will appear black and white, without any middle tint.

The solution of pyrogallic acid is prepared as follows :—

Pyrogallic acid...............	..3 grains.
Citric acid..................	......1½ grain.
Water	1 ounce.

This formula was given to me by Mr. Shadbolt. It may be used also for Norris's prepared plates, but as these develop more quickly than collodio-albumen, it will be advisable to dilute it with an equal bulk of water.

Having soaked the stereoscopic plate in water for a minute or two, take two fluid drachms of the solution of pyrogallic acid and add ten minims of a twenty-grain neutral solution of nitrate of silver. Then pour the liquid repeatedly on and off from a measure. The image begins to appear in about one minute, and is fully brought out in from five to eight minutes. Towards the latter end of the development the pyrogallic acid discolours, and may then be thrown away. I find it quite possible to complete the process with one portion of the developer, but usually prefer to employ two, as a security against fogging, of which there is theoretically a danger when the plate is treated with a discoloured developer.

If any failure occurs in this part of the process, it will probably arise from spots or marbled stains, but I do not experience any annoyance from this source when the surface of the albumen-bath solution has been carefully cleansed from scum, and the albumen itself cleared by subsidence.

6. *Fixing and toning.*—The pictures are fixed with plain hyposulphite of soda, and afterwards toned in the ordinary bath of hyposulphite of soda and gold. The fixing solution clears away the iodide and prevents it from getting into the toning bath and interfering with the deposition of the gold. If the toning bath is newly made, one hour's immersion will be sufficient to produce a dark colour, but in an old bath the plates may be left for twenty-four hours, or longer.

New hyposulphite, free from sulphuretting compounds, leaves the image of a reddish-brown, the tone, however, varying much with the time of exposure and the length of development. Hydrosulphate of ammonia, which Mr. Crookes has lately used, darkens the picture considerably, and may be employed without fear of causing fading, since the image contains more real silver than an albumen sun-print.

In conclusion, I may observe that my object has been to find a simple process, and one sufficiently certain to be recommended. In preferring Taupenot's process to that on dry collodion, I have been guided principally by the difficulty of always obtaining a collodion exactly in the right state. I ought also to mention that the negatives which I used in my experiments were rather intense. The film, in consequence, was liable to *solarize* in certain parts, and this I could not on Norris's plates altogether avoid. With a more feeble negative there would have been no danger of solarization, and the results on dry collodion might in that case, have borne comparison with those yielded by collodio-albumen.

NOTES ON MR. SUTTON'S REMARKS ON THE FADING OF POSITIVES.

Mr. Sutton commences by an elaborate disquisition on the "three branches of scientific investigation," namely,—"Hypothesis Experiment and Demonstration; or, to use plainer words, Guessing, Trying, and Proving." After telling us that we all have a right to guess (a thing nobody denies), he goes on to allude to the speculations of Sir Isaac Newton and Columbus, of ancient times, and of Adams and Levenier, in our day. From his statement of the case, it is clear that Mr. Sutton wishes to put his guesses on a level with those of Newton and Columbus, though he somewhat arrogantly denies us the chance of any such privilege. After reasoning to shew that he is in the same case with Columbus, &c., he asks, in allusion to a rebuke which we acknowledged to have properly received, would the remark "you may *suppose* whatever you please" be as applicable to the great cases above cited as to that of Mr. Malone? and then, without knowing what the supposition was, he answers, "we think not." Now, we must say that this is inconsistent with his doctrine of deference to "individuals, however humble," who offer a guess which "*appears*" to clear up a difficulty. Events shewed that we were nearer to being a Levenier than Mr. Sutton imagines—that is, in the sense of discovering a a body which disturbed our calculations; and we had, just as Mr. Sutton has, our facts of analogy at hand. But our misfortune was, that we offered hypothesis, mere guessing, where an analysis would have settled the matter. See how parallel this is to Mr. Sutton's case. If he does not feel this gentle rebuke we shall cease to carry our share of a like burden. To bring forward mere guesses, when the world is impatient for the facts of the case, is all but trifling, especially when the guesser betrays a want of sound method by the manner of his guessing. Newton, Columbus, and Adams had certain facts which the reason could appreciate; but, depend upon it, Mr. Sutton's particular guesses as to the present matter will never rank with those of Kepler or Newton. The first of whom, by the way, guessed right, the latter guessing totally wrong in the memorable point of the alleged total destruction of refraction on attempting to connect lenses for colour.

We do not object to any one offering speculations, but what we do is this, we say that Mr. Sutton's surmise, as to the two sulphides of silver, is so purely hypothetical, that it suffices to answer—we know of no such sulphide; and, therefore, according to the existing rules of scientific discussion, Mr. Sutton is silenced until he can give us evidence of the existence of this sulphide. To offer us hypothesis, when facts can be had, is to trifle with the matter. It may be professedly speculation only; but, depend upon it, no one acquainted with the present condition of chemical science would do more than cast a passing glance at such a statement. We have offered to analyse this yellow sulphide, so there can be no further excuse for resting satisfied with hypothesis. That is, indeed, to wait, Micawber-like, for things to turn up—a proceeding Mr. Sutton wrongly attributes to us. We quoted the words of Sir Isaac Newton, who himself expressly said that, after revolving an intricate matter in his mind for some time unsuccessfully, he "waited for more light"—the light of experiment, for example. If there be any force in Mr. Sutton's illustration, the great Sir Isaac Newton, amongst other great labours, anticipated the practice of the renowned Mr. Micawber! Both literally waited for "something to turn up," a proceeding, as Mr. Sutton's homily tells us, characteristic of "sheer imbecility." If this be not a *reductio ad absurdem*, we are much mistaken.

Mr. Sutton has repeatedly made attacks upon the printing committee of the Photographic Society, so it is not surprising that this topic of the fading should remind him that we have the honour to be a member of that committee. Let us see how this matter stands. Some time after the formation of the committee, and after its work had been distributed, we received an invitation to join the body, for the purpose of imparting any facts with which we might have become acquainted during our now fourteen years close contact with the art, and almost universal intercourse with photographers of all degrees of experience. We faithfully stated all we knew—be that much or little is nothing to the purpose—we stated every point distinctly, and promised to add such information as TIME and experiment might bring. That WAITING which Mr. Sutton prints derisively in capitals is an important element in this enquiry, and Mr. Sutton never made a greater mistake than when he penned his indignant philippic upon this *necessary mode of investigation.*

It is, of course, idle to object to the tone of Mr. Sutton's remarks, for, of course, he writes, as we ourselves do, just as it pleases him; but we would ask him seriously whether he thinks any one will be led to suppose that we have only a theoretical knowledge of the art, by his advice to us to become a "practical photographer?" After fourteen years of intimate acquaintance with every branch of the art, including the processes for engraving and the production of natural colours, it was hardly to be supposed that such a random hit as this could be made. Does not this mode of combat resemble the struggle of desperation rather than the firm grappling of an earnest antagonist? His charge of "utter ignorance" respecting the toning by heat recoils upon himself. If he did not understand the case, he might have asked for information. The toning alluded to will not take place in a well washed picture; so let us have no "quibbling or carping" about this last matter, at least.—Ed. L. & M. P. J.

AMATEURS' COLUMN.

We have seen how the prints for the "Pencil of Nature" were obtained. It only remains that I should make two or three remarks for the purpose of pointing out distinctly that all was done that our knowledge, at that time, could suggest. On looking back, the only flaw that can be seen is, in that part which relates to the washing of the prints. To us it seems doubtful if three changes of water for each batch of pictures could suffice. Let it, however, be remembered, that the water used was *as hot as the hand could bear*, and that the hypo-sulphite of soda was from a freshly-made solution. The difficulty was to obtain a proper test of the absence of hypo-sulphites. The evil of over-washing, too, had to be avoided. I do not think blame attaches to the process, and indeed, one can only admire the comparative degree of perfection to which it was brought under so many circumstances of doubt and difficulty. With me, a very strong proof of the three changes of water being justifiable, is the fact that some of the pictures of the "Pencil of Nature" are, to this day, as good as ever. What has become of the hypo-sulphites which we should now say must have been left in the paper? What other circumstances are needed to render hypo-sulphite fatal? Mr. Hardwich will reply, damp for one. True; but all the pictures are bound up in one book, and kept in a good library. Let us not lose sight of this fact when discussing the influence of hypo-sulphite on the fading.

There is a point relating to the history of toning processes that may very properly be related here. Originally, all ammonio-nitrate prints were of a warm sepia colour, more or less modified. This colour was by many disliked, although scarcely two persons agreed as to what colour would be most desirable. Advocates for the warm colours were then, as now, to be found. It happened, on one occasion, that some prints of a marble bust, by Mr. Henneman *(the first established photographic printer)*, were executed for the late Mr. Walter, of *The Times*. These, being wanted in a hurry, were, *after* pasting, rapidly mounted and ironed with a hot iron to smooth and dry them. It was at once observed that a remarkable change of colour ensued, such as is *never* produced by ordinary drying or exposure to sun and pure air. It was at once hastily concluded that the paste was the cause of the phenomenon. Mr. Talbot communicated the facts to M. Claudet (then a licensee under the calotype patent), and to the writer of this, who, on being requested to procure some paste for the experiment, took the liberty of omitting the farina, and succeeded quito as well with water only! A certain amount of moisture, and it is believed, a trace of the hypo-sulphites being necessary, with the heat, to effect the required darkening of the print. *From that time* it was a common thing to iron prints, or heat them strongly by a fire whilst still damp. So simple a matter was not in use till 1844. Soon after this I discovered that nitric acid, added to hypo-sulphite of soda, enabled us to obtain black tones in ammonio-nitrate prints. Sulphurous acid and free sulphur were liberated, and the print too much lowered, unless over-printed. These facts were not published at the time, but they were verbally communicated to those who took an interest in the art. The fashion of going into print on every occasion had not then set in. Several early experimenters have had their labours overlooked through being content with communicating their experience verbally. I am not disposed to find fault with this, for, undoubtedly, the publication of small matters aids materially the progress of the art. Still, let it not be forgotten, that the facts remain the same: *real priority* will still belong to the first proposers of any method, although they lose the credit which rightly belongs to full publication. This is a point upon which much misconception prevails. It is too much the custom to suppose that non-publication arises from a selfish motive, whereas it may spring simply from a reluctance to push forward, or from want of skill in arranging such matters for the printer. Moreover, there was no journal specially devoted to the subject of photography. Taking a great interest in tracing the history of photography, I have sought some rule to guide us in fixing the dates of discoveries, and enable us to apportion critically, the degree of merit due to each inventor. An impossible task! some will say. It is a difficult one, and after much consideration and enquiry, I have come to regard Sir John Herschel's view of such matters as the best one. He says, treat the public as a jury; lay ALL the facts before them, and let them judge of the character and demeanour of the witnesses. Sir John strongly opposed M. Arago's method of fixing the date of a discovery by published documents only. The lustre of the discoveries of some of our greatest men would be much dimmed, were we to admit the validity of such a canon.

It remains further to add, that the plates of the "Pencil of Nature" were printed at Reading, in Berkshire, where the first photographic printing establishment was set up, under Mr. Talbot's directions, by Mr. Henneman, who had long assisted Mr. Talbot in his experiments. Some of our early photographers will, doubtless, recal with pleasure the marvels of those first days, and bear testimony with me to the liberal manner in which Mr. Henneman communicated information to all earnest lovers of the art. It was there that the writer had the gratification of watching the steps of the process as detailed in these pages, and from that time he dates his full knowledge of the art, and also his first acquaintance with Mr. Talbot, M. Claudet, and M. Fizeau, his first qualified preceptors in all its chief branches. Now that the struggles respecting patent rights have terminated, he may, perhaps, be allowed to add, with some chance of being heard, that no charge of want of liberality could ever be honestly maintained against the early patentees by those who were bent only upon a scientific and personal use of the respective patents of that time. He would be ungrateful if he attempted to conceal his experience in this respect; and he regrets that in this matter, the full truth is not universally recognized. Time and events will set all right. M.

ON THE VARIATION OF THE FOCI OF LENSES.

By M. Claudet.

The question of the actinic focus is involved in another kind of mystery, which requires some attention. I have found that with the same lenses there exists a constant variation in the distance between the two foci. They are never in the same relation to each other; they are sometimes more or less separate; in some lights they are very distant, and in some others they are very near, and even coincide. For this reason I constantly try their position before I operate. I have not been able to discover the cause of that singular phenomenon, but I can state positively that it exists. At first, I thought that some variations in the density or dispersive power of the atmosphere might produce the alteration in the distance between the two foci; or that when the yellow rays were more or less abundant, the visual rays were refracted on different points on the axis of the foci, according to the mean refrangibility of the rays composing white light at the moment. But a new experiment has proved to me that these could not be the real causes of the variation. I generally employ two object-glasses; one of shorter focus for small pictures, and the other of longer focus for larger images. In both, the actinic focus is longer than the visual focus; but when they are much separated in one they are less so in the other; sometimes, when they coincide in one, they are very far apart in the other, and sometimes they both coincide. This I have tried every day during the last twelve months, and I have always found the same variations. The density of the atmosphere, or the colour of light, seems to have nothing to do with the phenomenon, otherwise the same cause would produce the same effect in both lenses. I must observe, that my daily experiments on my two object-glasses are made at the same moment and at the same distance for each, otherwise any alteration in the the focal distance would disperse, more or less, the actinic rays, which is the case, as it is easy to prove. The lengthening or shortening the focus, according to the distance of the object to be represented, has for effect to modify the achromatism of the lenses. An optician, according to M. Lerebours' calculation, can at will, in the combination of the two glasses composing an achromatic lens, adapt such curvatures or angles in both that the visual focus shall coincide with the actinic focus; but he can obtain this result only for one length of focus. The moment the distance is altered, the two foci separate, because the visual and actinic rays must be refracted at different angles in coming out of the lens, in order to meet at the focus given for one distance of the object. If the distance is altered, the focus becomes longer or shorter; and as the angle at which different rays are refracted remains nearly the same, they cannot meet at the new focus, and they form two images. If the visual and actinic rays were refracted parallel to each other, in coming out of the lens they would always coincide for every focus; but this is not the case. It seems, therefore, impossible that lenses can be constructed in which the two foci will agree for all the various distances, until we have discovered two kinds of glasses in which the densities or the refractive power will be in the same ratio as the dispersive power.

ON THE FORMATION OF PHOTOGRAPHIC IMAGES.

By M. Möser.

M. **Regnault** presented a paper by M. Möser, on the above subject, to the Academy of Sciences of Paris, on the 29th of August last, in which the author arrives at the following conclusions:—

1st. Light acts upon all bodies, and upon all in the same manner: the effects hitherto observed, are only particular instances of this general law.

2. The action of light consists in modifying bodies in such a manner, that after this action they absorb certain vapours which they could not otherwise; the process of M. Daguerre depends on this, and offers a particular instance of this general action.

3. The vapours are condensed, more or less strongly, by the bodies thus modified, according to their elasticity, and the intensity of the action of the light.

4. Iodide of silver, as is known, becomes blackened under the influence of light.

5. If the action of the light be continued, the iodide is transformed and becomes coloured.

6. The differently refrangible rays have one and the same action, and differ only in the time they require to produce a given effect.

7. The blue and violet rays, and the obscure rays discovered by Ritter, commence the action very speedily on the iodide of silver; the other rays require, to produce the same effect, as much more time, as their refrangibility is less.

8. Yet the action (5) is more quickly commenced and effected by the red and yellow rays; the others requiring more time, as they have a greater refrangibility.

9. All bodies radiate light, even in perfect darkness.

10. This light does not appear to belong to phosphorescence, for no difference can be discovered, whether the bodies be placed for a long time in the dark, or whether they be exposed to the light of day, or even to the direct rays of the sun.

11. The rays emanating from different bodies operate in the same manner as sensible light, and produce the effects indicated at (2) and (4).

12. These rays, insensible to the retina, have a greater refrangibility than those of the sun, whether direct or diffused.

13. Two bodies constantly imprint their images on each other, even when placed in perfect darkness (1), (9), and (11.)

14. Yet for these images to be appreciable, it is necessary, in consequence of the divergence of the rays, that the bodies shall not be very distant.

15. To render the representation of a body visible, some vapour should be used, such as the vapour of water, of mercury, iodine, chlorine, bromide, or chloride of iodine, &c. &c.

16. As the rays which bodies spontaneously emit have a greater refrangibilty than those which were previously known, they generally commence the action on other bodies with the greatest intensity. (7).

17. There exists latent light as well as latent heat.

18. When a liquid is vapourized, light, corresponding to a certain degree of oscillation, becomes latent, and is again set at liberty, when the vapour condenses into liquid drops.

19. It is on this account that the condensation of vapour produces to a certain extent the same effects as light; thus is explained the action of vapour as noticed (2) and (15).

20. The condensation of vapours on the plates acts in the same manner as light, whether the excess of vapour simply adheres, as is the case with the vapour of water on most substances; whether it adheres permanently as in the case

of mercury; or lastly, whether it chemically combines with the substance, as does the vapour of iodine with silver.

21. The latent light of the vapour of mercury is yellow, all the effects produced by the yellow rays may be obtained by the condensation of the vapour of mercury.

22. The latent light of the vapour of iodine is blue or violet; the action of the blue or violet rays may in like manner, as in the former instance, be produced by the vapour of iodine.

23. The latent light of chlorine, bromine, chloride and bromide of iodine, appear to differ but little in refrangibility from that of iodine.

24. With regard to the colour of the latent light of the vapour of water, I can only say that it is neither green, nor yellow, nor orange, nor red.

25. Iodide of silver owes its sensibility in contact with the visible rays, to the latent light of the vapour of iodine.

26. Iodide of silver is not more sensible to the invisible rays than is the silver itself.

Remark.—With the exception of the principles contained in 9, 17, 18, and 25, all the preceding are deduced from numerous researches, which are described in the following papers in the "*Annales de Physique de Poggendorff*," &c.

(*a*) *De la marche de la vue, et de l'action de la lumière sur tous les corps.*

(*b*) Sur l'etat latent de la lumière.

(*c*) Sur la lumière invisible.

All theoretical views will be discarded, if we reject the principles contained in 9, 17, 18, 25; but there will then be a deficiency in the explanation of the phenomena.

M. Arago communicated to the Academy the following letter from M. Brequet, relative to a phenomenon which tends to confirm the experiments of M. Möser.

"The remarkable facts discovered by Professor Möser, and which have been communicated to the Academy by M. Regnault, have brought to my recollection something analogous, which I have observed at different times in the interior of gold watch-cases, and even in the interior of the works, which are made altogether of yellow copper.

"Every one knows that on opening the case of a watch, there is a second case below it on which is engraved the name of the maker. This second case comes very close to the first, and I have frequently seen on the outer case the image, reversed and very distinct, of the name of the maker, which is engraved on the inner case.

"In the works of watches where the parts are placed very near to each other, I have sometimes seen certain images, more or less remarkable.

"I have observed these curious facts, and have even mentioned them to some individuals; but not having had the time to observe all the peculiarities of the phenomenon, I have not until now made them public."—*Comtes Rendus.*

Manchester Mechanics' Institution: Photographic Dissolving Views.—In our last number we promised to notice these pictures, which are now being exhibited daily in the Lecture-room of the Mechanics' Institution; and we think we cannot do so in any other way better than by quoting the words of a contemporary:—"The leading photographic dissolving views (specially prepared) must give to the audience a more vivid idea of the actuality of the remains of the temples, tombs, &c. of Upper and Lower Egypt and Nubia, than anything short of an inspection of the remains themselves ever could afford. Books, drawings, oral descriptions, are alike feeble aids to a conception of the massive grandeur and the enormous solidity and extent of those remains, compared with the pictures (30 feet by 25 feet), which are set before the audience; every detail rendered with the unerring accuracy of the photograph, brought out with all the solidity and roundness of the stereoscope, and shewn by the aid of the most powerful light. Each picture is a study for the scholar, a book for the learner, a romance for the unlettered; and any person, of any of the classes named, might well find increased pleasure in proportion to the frequency of the visit of inspection. The Pyramids of Gizeh, the hundred-gated Thebes, the great Temple of Karnak, the Rock Temple of Aboo-Simbel, and many other views of the same kind are shewn. Then there are English and Continental views, including Notre Dame, Lichfield Cathedral, the Amphitheatre at Arles, the Campo Santo at Pisa, &c.; and to these must be added some fine statuary, interesting from local associations, or gratifying as embodiments of beauty of form. The statue of Humphrey Chetham is shewn, the photograph being taken from the original model by Theed, for the statue in Manchester Cathedral; the Veiled Image of Truth, by Monti, is much admired, and the same may be said of Marshall's Chaucer and Monti's Italy, and the statue of Madame Malibran. Altogether, forty-five views are shewn; and with regard to part of them, we think the directors may fairly claim, that they constitute 'the grandest illustration of the architectural remains of ancient Egypt, that has ever been exhibited in Europe.'" It is only giving honour where honour is due to state, that the Egyptian Views are by Negretti and Zambra, from Mr. Frith's negatives, and most of the statuary from well known examples in the Crystal Palace, Sydenham. The pictures are invested with additional interest, by the concise descriptions given in a conversational manner, by the Secretary, Mr. Hutchings.

CORRESPONDENCE.

TINTED GLASS FOR ROOFS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I thank you for the opportunity your observations have afforded me for bringing forward further particulars respecting the important subject of the changes that take place in glass, and their probable effect upon the efforts of the photographer. As these changes are the results of time, it consequently follows that the experience of many years' standing, is of some value, and the following is a record of what has come under my own notice.

Fifteen years ago I was consulted by a company established in Liverpool for the purpose of taking Daguerreotype portraits, as to the best medium for their operating room. I recommended "white" glass. In the course of twelve months they complained that the time of exposure in the camera had greatly increased, and that they could not account for it. I discovered that the glass had changed from a "white" to a purple, and hence the obstruction to the chemical rays. I likewise discovered by actual experiment, that of all the makes of plate glass none were so stable in colour as the Ravenhead, which every one knows is of a *blue tint.*

On examination of the stained glass in York Minster, I invariably found, on turning up the lead, that the part exposed to 200 summers was the same in *tint* as the part under the lead, and of all the colours the *blue* was most completely unchanged.

Cobalt being the colouring medium, I came to the conclusion it was the best material to tinge the glass with, especially as it favoured the transmission of the actinic rays only. I hold these statements to assume the position of undoubted facts, and they clearly go to prove that "thoroughly *practical* men" hold erroneous views on this subject. I therefore court discussion upon the matter, not because I am connected with the glass trade, but because I am a photographer.

I cannot accept the doctrine that because colour in glass is a "tint," it must necessarily "deepen," so far from this being the case, I can shew by specimens I have just described, at least 200 years old, that this is an utter fallacy, especially with respect to *blue tinted* glass. I have placed it in the roofs of the operating rooms of the London School of Photography, as well as Mr. Keith's, and they inform me that not only is it *quicker* than "white" glass, but that the sitter is not constrained in his features during the operation. I make no claim to originality in this matter, for Mr. Hunt, *as usual*, is before me, and I refer you to his excellent work on photography, pages 148 and 302, for an account of his experiments.

I am, Sir,
Yours very truly,
JAS. ALEX. FORREST.
Liverpool, 7th Jan., 1858.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Referring to the recent statements of M. Niepce de St. Victor, permit me to call attention to Vol. 38 of the "Mechanic's Magazine," 1842, pages 156, 288, 549. At the last Professor Möser, of Königsberg, deduces twenty-six propositions from his researches on the subject, which are well worthy the notice of photographers.—Yours truly,
Manchester, Jan. 6th, 1858. SAMUEL COTTAM.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—So it appears that Mr. Forrest's conspicuous introduction of my copper process, as reported by him in his two distinct papers, in two different journals, as a very promising new process which he was just going to try, and from which he had the greatest hopes, was, after all, *a mistake;* and that he meant instead to have said that it was a process which he had found worthless, and did not intend trying again. My other processes, also, are "found to be not practical." Does he mean to say that they will not practically answer for being burnt in? If so, has he tried them all? or is this only his way of shewing his disappointment and disgust at the failure of the very promising cuprotype of the one out of two of my suggestions for burning in?

As to his sneers at my paper as a mere "suggestion," truly such sneers do come with rather a bad grace from him, after his having voluntarily put forward his "exceeding regret" that it was out of the power of those not blest with his professional "opportunity of a furnace" to carry on the burning in of photographs.

Mr. Forrest contrasts his paper as a "record o actual experiment," by which, of course, he mus mean original experiment, with mine.

I shewed specimens, also, of some dozen new photographic processes, containing a variety of the metals recommended, explaining the nature of the processes, their advantages, and modes of burning in.

Mr. Forrest, silver apart, shewed photographs with one compound, to which I had already called attention, as suitable for burning in, and introduced a new process which I had published in three different journals, as a "very promising" new process of his own, which he intended trying for burning in; but abandoning the cuprotype, Mr. Forrest now says, "That Mr. Burnett overlooks the great fact that, in my experiments, I laid over them a solution (!) of flux, which he had never suggested, and it is for this that I claim originality!"

I am sorry for it. But I cannot see the great difference between this "great fact" which I have "never suggested," and the application of a flux or vitrifiable substance, or mixture of substances, which we did suggest, not only to the paper or other film, where printed separately, both before and *after* their application or attachment to the glass, but also to the films of albumen, dextrine, &c., with which the glass, porcelain, &c., had been coated in the ordinary way before printing.

Happily for myself, though unaware when I made "the suggestion" that any one had been before me in it, I merely gave it among other plans, which, from their nature and from my experiments, seemed likely to answer, my claim to originality being founded on a broader basis than any such single detail, for—alas! for the "great fact!"—I find by a memoir, "Applications de 'Heliographie aux arts, Ceramiques," Paris, Chevalier, 1855, kindly lent me by Dr. G. Wilson, that an impudent Frenchman, one M. Leon de Camarsac, has actually had the assurance to anticipate both me in my little *en passent* suggestion, and Mr. Forrest in his discovery of "the great fact." What I did claim originality and some little merit for, was, and is, the placing the photographic artist in much the same position with regard to the producing of *neutral tints* and colours on porcelain, glass, &c., as the un-photographic artist had long been in, by calling attention to, and shewing the means of, producing photographs in a variety of suitable materials and their combinations, including iron, copper, cobalt, manganese, chrome, &c. No doubt my photographs were not burnt-in, but what of that? Who would ever think for a moment of doubting the possibility of burning in photographically produced prints, consisting of the very same metals as in un-photographically produced prints are burnt in every day of the year; and for Mr. Forrest's satisfaction, I may mention that, though the "want of opportunity," &c., was of course quite sufficient to prevent my having any specimens in the least degree presentable to shew, yet the rough and imperfect experiments which I have made, have been quite sufficient to shew the possibility of burning in photographs with some variety of the materials recommended, (as well as with silver and gold,) from paper as well as from film-prints, and not only with but even *without* the assistance of "the great fact."

As to the old joke of Hamlet without Hamlet, which Mr. Forrest has brought forward to his assistance, Shakspeare was no doubt an actor, and may have acted as well as written Hamlet; but had he not been so, or had any circumstances intervened in this particular case to prevent his having acted the play before he had published it, would the first actor, who could muster the requisite properties or command the stage and appliances to enable him to act one single part or one single scene, have been entitled, had Shakspeare remarked, "That's my play," to turn round and say,—Hamlet without acting Hamlet? Can anything be more truly ridiculous to the practical mind? It strikes me that, for his own sake, Mr. Forrest might fully as well have left the ghost of Hamlet uncalled up; however, that is his affair, not mine.

By-the-way, I find that the same M. de Camarsac has been not very far from some of my processes, producing impressions for burning in, having tried with *gelatine*, the chromates of gold, lead, tin, and silver. Happily, however, for me, he seems to have stopped short there, contenting himself with the simple chromates, and of only these metals, and "*the great fact.*" He seems to have got, also, some sort of dark pictures from silver alone, whether the same as Mr. Forrest's, which, it now appears, were "what has been so much admired," I do not know.

Should it be that Mr. Forrest has discovered any new method, whether by that systematic rambling over the whole field of experiments, or by some fortunate freak of his furnace, of producing good dark pictures with silver, I will be the last man to deny the value of it; though it was rather thrown into the shade in his paper, by the purely "asthetic" treatise on perpendicular windows, brilliant augurics of the future of the cuprotype, &c. Had Mr. Forrest at all confined himself to the "record of actual experiments," even though the burning in of the chromate of iron was only the carrying out of one of my previous suggestions, I would have said nothing, but the parading of my cuprotype as his own, with the studious ignoring of my hints and processes, both in the *Journal* and in the *Notes*—particularly in the very paragraph in connection with which he addressed me—together with the entire omission of all notice of his communications with me, and his talk about the new field which he was opening up, was rather too marked to escape notice.

His attempts to make it appear as if I accused him of copying the cuprotype, &c., from the pamphlet (which I sent him) are rather too absurd.

As to Mr. Sutton's astonishment that he should be found fault with for his re-suggestion, and talk about his ignorance that he had first published the plan for me, and his forgetfulness of the allusion in my letter, it must be recollected that I took no public notice of the ignorance, supposing it, of course, to be nothing but accident, till his *forgetfulness of the allusion in the letter* had been shewn in the following *Notes* by his repetition of the re-suggestion, along with the additional hints about M. Poitevin's process, which had accompanied it in my letter; not to speak of his suppression of all my July remarks, which were not only in his hands, but which I had previously written to him in connection with Mr. Forrest. The idea of an apology being due *to* him in these circumstances is not bad, and is only of a piece with his imagining that Sir David Brewster, yourself, and I, are bespattering him with mud.

As to Mr. Sutton's insisting about the large lenses giving one and the same picture for every part of the surface, upon what principle, I should like to know, can two pictures be called the same picture, where each differs from the other, in containing objects, or parts of objects, which the other does not contain?

In his attack on my band lenses, in *Notes* of September 1, page 3-24, his assertion was, that the two holes did not give different pictures, "at least, if the objects were equally visible from each hole." Can one imagine a more extraordinary instance of the *exceptis excipiendis* style of argument? Who on earth ever suggested (neither Sir David nor I, I am sure) the employment of either a lens of one-eye-diameter, or of a band-lens, for either the copying of paintings, or the taking pictures of flat objects of any kind.

Mr. Sutton has also tried to make me appear as if asserting that the two eyes were to separate and re-combine the infinite number of pictures produced by the band-lens, though I had expressly stated that "one-picture art could never yield the effect of solidity, which could be produced by the optical convergences alone."

As to his experiments, as related, with a portrait lens from his window, no doubt you may, by using the two-hole-cover for the lens, produce either an image with double edges, or images double altogether and separated to any extent, by throwing the object out of focus, and though it is, of course, also true that the two images of a *flat* object—every part of which is seen equally from both holes—*must* be necessarily coincident when rightly focussed for, yet in the most important case of an object, parts of which are seen from the one hole which are not from the other, it is manifestly impossible to make these parts coincide, and any such apparent coincidence (in the case of a bust, for instance) is only obtained when we force the mere outlines into an imperfect coincidence, by pushing the pictures, to a certain extent, out of focus. *It is clearly impossible to make parts of one picture coincide with the same parts in the other in which they do not exist.* It is only, of course, in the case of near objects that such influences come appreciably into play, or have ever been insisted upon, and even then there may be varieties of opinion as to how far we must alter our plans to allow for them; but why therefore deny facts, or represent that as an exceptional state which is not only a most ordinary state of circumstances, but which *includes the entire range of cases for which either the one-eye-lens* has been recommended by Sir David Brewster, or the band-lens by me.

I send you two pictures taken with a lens having a close fitting diaphragm, containing two holes, as described by me—the first being taken with only one hole open, and the second with both holes uncovered. The statue was rather in a dusty and soiled state, so that the result is not so perfect as I could have wished, but still you will discern both the *entirely separate* images in the string, which is *out of focus*, and the separation by *projection of the outlines of that part* of the picture which is in true focus. I am sorry I have no proper specimens of cuprotype to send you, but send you one spoiled by over-printing, and another by under-printing, which will enable you to judge how like silver prints the results are in their unburnt state. I send also a specimen of a chromate of manganese print and of anuranium print.—Yours truly,

CHARLES J. BURNETT.

8, *Walker-street, Dec.* 25, 1857.

ANSWERS TO CORRESPONDENTS.

We regret that we are compelled to omit, in this number, our answers to several communications we have received, but which are in type, and will be given in our next.

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The Liverpool & Manchester Photographic Journal.

New Series. No. 3, Vol. II.—FEBRUARY 1, 1858.

At a meeting of the Liverpool Photographic Society, on the 26th ult., the subject of its amalgamation with the Historic Society was fully discussed, and the opinions expressed by the speakers were so much in favour of the terms arranged between the committees of the two societies, that we have no doubt at the special meetingto be held on the 8th inst., the proposition for the amalgamation will be confirmed.

In the course of the proceedings at the above meeting, Mr. Forrest again introduced the subject of coloured glass, and stated that it was "useless to prolong a discussion where theory and speculation only are opposed to tried results." We deny that the discussion has been prolonged by us upon "theory and speculation." Mr. Forrest should remember that it is possible for others as well as himself to try experiments, and yet not all arrive at the same conclusion; and we will not admit, because Mr. F. has decided, that the results are sufficiently known to justify their general adoption. We feel glad that we have caused the matter to be taken up in a proper experimental manner, as we have simply asked for proof of statements which were offered us without sound demonstration. We have said that we shall be glad to find Mr. Forrest right in this matter, but we still protest against *assumptions* being forced on us as truths. We still say that blue glass is not proper for a scientifically constructed glass room. Mr. Keith may decline further controversy, but he cannot thereby escape from his position as recorded in the *Journal.*

It is difficult to say what topic is at this moment most worthy of our special attention. The manufacture of collodion has been repeatedly discussed, and yet, if we are to believe several skilled operators, a recipe for a fluid uniform and satisfactory in all its properties has not yet been obtained: certain empirical preparations still maintain their ground against all the assaults of chemical investigators. It is related of one Mr. ——, that he mixes two empirical liquids, and obtains a third superior to either separate; he knowing nothing of the composition of his favourite compound. Then Mr. —— not satisfied with any mere mixture that he can make from purchased specimens, "doctors up," in his own way, a certain collodion, and thus gets the required good qualities. Now all this is very much to the discredit of the *science* of photography. Is it possible to devise any means of delivering us from this state of ingloriousness? Our advice is to go back to the simplest methods of proceeding. The Count de Montizon long ago produced, with great uniformity, a very sensitive collodion, which gave admirable pictorial results, by using a cotton prepared with nitre and oil of vitriol in the place of the mixed acids. One of his points was to use but little cotton in proportion to the mass of nitre and acid; and to operate on small quantities, so as to ensure at once a rapid and thorough impregnation of the fibres. Iodide of potassium alone was the iodizing agent. It is desirable that two or three gentlemen should repeatedly prepare soluble cotton by this primitive process, and then compare notes as to results, trying also the addition of bromide of potassium after the experiments on the iodide alone have been exhausted. We suspect that discrepancies would be observed which must be explained and removed before further steps are taken. A set of experiments made in concert would, we feel sure, be more instructive than the isolated labours of individuals. The substances used should all be obtained from one source, and all rigorously tested in every possible way; or where it is desirable to try materials from several sources, all those concerned in the experiments should be equally supplied with the various samples. We repeat that the present condition of the *public* knowledge respecting the manufacture of collodion is not creditable. Our present published formulæ are of little use, so long as empirical nostrums are preferred by operators of repute. Let experimenters give incontestable proof that their recipes will furnish a product equal to the best of the advertised collodions, or let them confess that they have only half executed the work they have undertaken. It is our object to stimulate by these remarks those who may feel that they have the necessary leisure and *perseverance* for this proposed joint investigation.

From the manufacture of collodion the transition to developers is easy, and here again how vague is our knowledge. We saw the other day, in skilful hands, a private formula for the developer give beautiful effects with an empirical collodion; the developer sold by the maker of the collodion not giving anything like the same perfection of result. Here are two people groping in the dark; the one can make a collodion, and the other a developer; the two are strangers and many miles apart. No published account of the positive process has yet enlightened us satisfactorily on these matters. Many of the positive collodions sold by established houses give wretched results in the hands of amateurs. Of such we may justly say, "they are made to sell, not to use."

Whilst speaking of the positive process, we must not omit to call attention to an American work, from which we have more than once quoted formulæ and remarks. It is by Mr. Seely, of New York, and is entitled *The Ambrotype.* It contains practical information on all topics relating to the positive process, and will repay the reader for a perusal. The style of our transatlantic brother is, here and there, particularly *piquant.*

We have at length Mr. Sutton's long-promised process for printing positives by development. We are told by its author that it is all that can be desired—save and except, in a few particulars. One point that Mr. Sutton is anxious to insist upon, is its superior permanency; but he has not ventured to assert that it is more permanent than the old calotype or Talbotype, which has been long since used to produce positives by development. Mr. Sutton's process must be judged by its power of giving us faithful transcripts of the negative, with that delicacy of gradation of tint, for which the much-abused albuminized positives are at present valued. The "new" method is simple, and so was Mr. Talbot's iron process, in which salt and acidulated nitrate of silver were used with sulphate of iron, as a developer; but the difficulty hitherto has been to get, with a *simple* process, effects by development, which could not be surpassed by the direct action processes. We shall give this latest of Mr. Sutton's developments a thorough trial, and report upon it impartially: we shall be happy to find it an "infallible" remedy for all the ills under which we are at present said to labour. The property possessed by light of apparently undoing its own work, is worthy of close investigation. We have inserted some particulars respecting this subject, and we shall shortly give the results of a repetition of some old experiments of ours made in this direction. We propose to use M. Claudet's *photographometre,* to enable us to give a numerical value to the quantity of light required to effect the destruction or reversal of the ordinary action, which occasions the negative image.

In the letter of *Amicus,* which we with pleasure insert, allusion is made to a fringe, which sometimes borders images in a remarkable manner: can any of our readers throw more light upon this subject? Has it anything to do with the focus or correction of the lens?

Mr. Hislop's application of photography to educational purposes by means of the magic lantern is a happy one; we expect to hear of its general adoption for schools and private classes, as well as for more public demonstrations. The oxy-calcium lamp of Messrs. Horne and Thornthwaite would be just the thing for private use, and where a picture of only a moderate size is required.

PRACTICAL PHOTOGRAPHIC NOTES, BY H. FRANCIS, ESQ.—Discolouring of the silver bath in which albuminized paper has been prepared, is a constant complaint made by photographers. Kaolin is generally recommended and answers very well, but it is so difficult to procure that after preparing as much paper as I require, I return the solution into a large bottle, which has about a pound of pipe-clay in it, and after giving it a good shake up, leave it to settle for tomorrow's use, when it will be found quite clear. This is much cheaper than kaolin, and can be procured in any part of the world.

METHOD OF ILLUSTRATING LECTURES OR SCIENTIFIC PAPERS BY MEANS OF PHOTOGRAPHY.*

[Read before the North London Photographic Association, December 30, 1857, by Mr. W. Hislop, F.R.A.S.]

I WISH to direct the attention of the meeting this evening to an application of photography for the purpose of illustrating scientific lectures or papers, and also for educational purposes. Those who are called upon to perform these duties, either occasionally or continuously, know that a large portion of the labour and expense is expended in the preparation of diagrams. In microscopy, in physiology, and in astronomy especially, the subjects are often so elaborate as to require a great expenditure of time and money to prepare the representations which are absolutely necessary for the purpose of illustration.

Transparent positive pictures have already been used in the magic lantern, and it occurred to me a short time since, that we have a ready and perfect means of producing a representation of the object required on as large a scale as may be deemed desirable. My plan is as follows:—I take a drawing or engraving of the subject to be depicted, and fastening it by pins, tapes, or any other convenient means against a board, with a small stereoscopic view lens of five or six inches focus, I take a negative, including the title or description attached, if there be any, and reducing the size if necessary. I then obtain a transparent positive from this negative, either by superposition on a dry plate, or on wet collodion by the camera, with the same lens. The result is mounted in the ordinary style of slides, or similarly to a stereoscopic transparency. The specimen which I now hand round has been prepared in this manner. It may be observed that we need not to confine ourselves to plain black and white, but transparent colour may be added by the ordinary methods.

The slides may be shewn by the common magic lantern; but a very great improvement will be made if the common magnifier be removed, and a quarter plate photographic portrait lens be fitted in its place. This arrangement being achromatic will give a more perfect definition.

In order to avoid the inconveniences of a perfectly dark room to the lecturer and audience, I should recommend a modification of the common plan. I use a ground-glass screen, about twenty-four inches square, set in a wooden frame with a foot. This is placed at a sufficient distance from the lantern to be equally illuminated, and the space between the lens and the screen is covered with black cloth, supported on a light frame. The picture may thus be shewn without the whole of the lights being extinguished.

I take this opportunity of remarking, that by the aid of photography, the views shewn by the phantasmagoria lantern are capable of an extraordinary amount of improvement, and I think that this method of preparing pictures has not received the attention which it deserves. At a far less comparative cost of labour and money, productions superior in every respect may be made to take the place of the coarse and incorrect representations which now go by the name of "dissolving views."

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* Printed with the Author's permission.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

THE monthly meeting of the members of this Society was held at the Royal Institution, Colquitt Street, on Tuesday evening, January 26th, for the purpose of receiving the Annual Report of the Council, and the Report of the Deputation appointed to confer with a deputation of the Historic Society of Lancashire and Cheshire, as to the terms under which it was proposed to merge the existence of the Photographic in that of the Historic Society, and of deciding thereupon.

C. COREY, Esq., who presided, stated that it would be desirable to leave the consideration of these reports to the last, in order that every chance should be afforded to absent members, who might still be in attendance before the meeting closed, of taking part in the discussion. In the absence of more interesting matter, he (the Chairman) laid before the meeting a beautiful specimen of American photography, on the peculiar description of highly polished black cloth, or leather used by ladies in crochet work. The image was perfectly sharp, and apparently as indelible as it was distinct and clear. Mr. Corey said the method of producing the photograph had been communicated to him by Mr. Ross, of New York, who had favoured him with the following account, which he entitled :—"*An Easy Process for Transferring the Collodion Film from glass to the surface of any suitable material.*"

A war of words having occurred between Mr. Bullock, of somewhere, and Mr. Smith, of Tain (I wish I was there now), as to the original discovery of a certain process for a similar purpose, I send the Society two specimens of *my* process, which may or may not be the same as theirs; but at all events, it is easy of manipulation, in fact, easier than to keep the film on the glass and finish it there. The Society may remember that nearly two years ago I sent some other specimens, on various materials, so that I cannot have been indebted to either of the above gentlemen for it, should it turn out to be the same as theirs.

In the first place the film must be suitable for the purpose, which is made with a mixture of ether and alcohol, in which bulb 4* will just sink very slowly (s.g. 0.761). In each f. oz. of this mixture six grains of pyroxyline, and five grains of iodide of ammonium, with three grains of bromide of potassium, have been dissolved. The silver bath is of the strength of 20° of the actino-hydrometer. The developer is a 12° solution of sulphate of iron, to which one-eighth its volume of acetic acid has been added, having a strength of 17° of the A. H., or 50 per cent. of the glacial acid. About one-third of the volume of the acid is added of alcohol. The impression is cleared with cyanide of potassium.

All so far you will see is the usual way of making a direct print on the glass, which has now to be transferred to the textile or other surface. Prepare now a solution of sulphuric acid of a strength of 3° of the A. H.; or, in other words, dilute the sulphuric acid to this strength, and pour a little of it on the enfilmed glass, while still wet after washing off the cyanide, and let the acid remain on it from one to two minutes. Now, wash it well off, and warm the cloth over a lamp or fire till it is soft and pliable; then, while a thick film of water is on the glass, lay the cloth over the impression, and pass the finger over any air bubbles,—which will seldom happen if the material has been properly warmed and cleaned. Previous to warming the cloth it should be cleaned with a little alcohol and a pellet of cotton. Turn a part of the film over the edge of the cloth, and gently raise one corner to see if the film follows it; if it does, insert a drop of water between the part so raised and the glass, after which the whole may be readily lifted from the glass, and washed with a little stream of water, and dried. Should a small air bubble be discovered at a distance from the edge, prick it with the point of a needle while still wet, and it will instantly vanish.

The picture may be hung up to dry, either spontaneously or over a fire or lamp, and cut by the scissors to any size. It is always well to enfilm a glass somewhat larger than the picture is required, to allow a small portion of the film to fold over the cloth. You will see by the specimens sent that when dry they will bear considerable rubbing without injury, seeing no varnish or adhesive matter of any kind is used, either before the film is removed or afterwards. The use of the acid is to *toughen* the film, and is of no use for causing the adhesion, it being wholly removed by washing before the cloth is laid on.

Another advantage of this process is, that pictures on unclean plates, which would be unpresentable on the original glass, from deposited silver between the glass and the film, are in no wise injured by such deposit, as after the film is transferred and dried, the deposit may be entirely removed by rubbing with a piece of wash-leather or a pellet of cotton. For fitting in breastpins, rings, or lockets, it is unsurpassed; and the silver surface being inside, the collodion film can hardly be injured by the atmosphere, nor turn yellow by a decomposition of varnish which is not present.

Such is the process by which these specimens have been made, and no charge of half-a guinea is made for it; but as soon as it returns here, ten dollars at least will be charged for it, from all those who are *too wise* to spend half that amount in subscribing for a *Journal*, in whose columns they might read every thing known in their art.

During the summer I purpose sending some views transferred in the same way, for the examination of the Society, as I am now restrained from sending larger ones from considerations of postage.

WM. ROSS, ARCHITECT.
26, *Second Avenue, New York,*
4th January, 1858.

P.S.—Should any members find themselves in the neighbourhood of *Tain* or *Tarbot*, and would send me a small picture of Balone Castle, near which I was brought up, I would reciprocate the favour by something from America. W. R.

Mr. FOARD observed, with reference to the process of transferring described by Mr. Ross, that about three or four months ago he was waited upon by a gentleman, who, from certain indications, he thought must surely be a photographer; and so it appeared. The visitor said he had something very particular to discover to him, and after much beating about the bush he said "he had one mode of transver, vhich vos ver beautiful and ver simple," and asked him (Mr. Foard) to purchase it. Now he had so many wonderful secrets, which were no secrets, brought to him every week, that he was inclined to give the foreign gentleman something like hearty thanks, and wish him good day, but, after some further conversation, the secret was unfolded. It described a mode of transferring by using sulphuric acid a method which he (Mr. Foard) found to be very simple and very successful. He gave the man a testimonial, promised to keep the secret, which he had done until he found that it had been known and practised in France for some months, and now it appeared that it had been known some time before that in America; but he greatly preferred washing both the oil cloth and the film while just damp from partial draining, with spirits of wine, pressing the two very closely together, and leaving them to dry spontaneously, when the film will be found to have quitted the glass entirely, adhering solely to the oil-cloth or leather.

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* Contained in the box containing the *actino-hydrometer.*

Mr. J. A. Forrest then addressed some remarks upon certain animadversions which he said had been cast upon him in the *Liverpool and Manchester Photographic Journal*, and proceeded to say:—I deem it a duty I owe to the Society, to put the matter in question in a practical channel of settlement. As it is useless to prolong a discussion where theory and speculation only are opposed to known and tried results, I decline further controversy, but am content to set the matter at rest by a practical experiment of the most stringent kind; I therefore propose that a committee be appointed for the purpose of investigating the subject; and to afford them the fullest facilities for so doing, let them call upon sundry parties who may be most interested in the subject, to furnish specimens of the different varieties of white or tinted glass. Mr. Keith has kindly offered a portion of his operating roof, for the purpose of glazing with different specimens of white and tinted glass. I propose that pieces of various tints and colours of glass, as well as white, be inserted in this roof, exposed to the full effect of the sun's rays, and that corresponding portions of each specimen be placed with the committee in sealed envelopes. At the end of the summer the experiment will be complete. The pieces, from the roof, can be compared with the portions in the hands of the committee; the difference in the results will substantiate the position taken by the Editor of the *Journal*, or the statements of mine, which have been called in question.

The Chairman thought Mr. Forrest's proposition was just the one that was wanted.

Mr. Foard, in seconding the proposition, expressed some surprise that the Editor of the *Journal* had not entered into the discussion in a more fair and liberal spirit. The remarks made in the leading article in the last *Journal*, as to the failure of blue glass, referred to the blue glass formerly in the Polytechnic, the tinted glass in which certainly retarded rather than assisted the process, and it was changed for white. But that did not settle the question, because that glass was of a different tint to the glass advocated by Mr. Forrest. The glass in the Polytechnic was a dark blue, that referred to by Mr. Forrest being a light blue; the former did deepen in tint, and might have afforded some ground for the Editor's statements.

Mr. Berry suggested that, in the event of the amalgamation with the Historic Society, the specimens of glass to be experimented upon should be put in a frame, and placed on the top of St. George's-hall. This would remove all ground for any supposed collusion which might be charged upon them, were a private establishment selected for the experiments.

It was resolved that this suggestion should be acted upon, and Dr. Ayrton, Mr. Glover, and Mr. Berry were appointed a committee to conduct the experiments.

Mr. Forrest wished to observe with reference to the remark in the *Journal* on his reference to glass in the York Cathedral being 200 years old, that there was one striking feature in ancient glass which was absent from modern glass. In olden times the salt was not skimmed from the surface of the glass after it was melted, but it was allowed to float on the surface, and the result was the formation, by lapse of time, of a number of minute holes, caused by the separation of the salt.

After some further conversation the subject was allowed to drop.

THE ANNUAL REPORT.

The Chairman read the following report and statement of accounts:—

The Council of the Photographic Society, in presenting their fourth Annual Report to the members of the Society, would request them to bear in mind that last year has been in some measure probationary, for it was entered upon with the appointment of another Treasurer in lieu of the gentleman who had so ably filled that office heretofore, and with an increased subscription, chiefly to establish the fact, if possible, that the Society could be able to preserve an independent existence, and not need the fostering aid of an elder brother by accepting the friendly advances made by certain members of a learned and long established Society. The result of this experiment is not such as would justify the members of the Council in recommending to the main body of the Society to continue their present phase of existence. The science of photography was so rapidly increasing in its wondrous effects, that ere we had time fully to consider and to comprehend each new discovery, another light eclipsed the rays of the last new marvel, so that its admirers were glad to meet and increase the store of knowledge by the interchange of their several ideas; but either the science has nearly reached its culminating point, or there is some other cause not within the province of your Council to divine, but the meetings have been fewer, and the proceeds, as will be shewn by the balance sheet, are insufficient for the further progress of the Society as at present constituted. In this exigency the question was again mooted at the last meeting of a coalition with the Historic Society, and a committee of this body was selected to confer with the Council of the Historic Society; they met on the 14th of this month, and certain conditions were then agreed upon subject to the approval of the respective bodies. These will be laid before you in the course of the evening. It appears that there was an Act of Parliament passed, in 1854, that has reference to our present position; by this enactment it is ordained that before a perfect fusion of two learned or literary societies can take place, there shall be two separate meetings of either or both of the several Societies, so that the condition of such junction shall be well and duly considered and deliberated upon. The members will therefore have ample time to mature their opinions upon these conditions, as another meeting will be necessary before their fiat will be called for.

The statement of accounts was then read, and, together with the report, adopted, *nem. dis.*

PROPOSED AMALGAMATION WITH THE HISTORIC SOCIETY.

The CHAIRMAN read the following minutes of the conference between the deputations of the Historic and Photographic Societies:—

Committee of Conference on the subject of union,

HISTORIC SOCIETY—Dr. Hume, and Messrs. Sansom and Buxton.

PHOTOGRAPHIC SOCIETY—Messrs. Corey, Keith, Foard and Forrest.

Meeting in St. George's Hall, 14th January, 1858, at six p.m.; present, Thomas Sansom, Esq., in the chair, also Messrs. Keith, Foard, Forrest, and Corey. The following draft was unanimously agreed to:—

1. That the Photographic Society become part of the Historic Society, *i. e.*, that it accept the name and laws of the latter.

2.* That the number of SECTIONS, as fixed by the present laws, be not increased, but that communications on photography be admissable at all the ordinary meetings.

3. That a Photographic Committee be appointed annually, at the commencement of the session, like the committees for printing, finance, the library, &c.

4. That it be allowable† to print papers on photography in anticipation of the annual volume of "Transactions", at the discretion of this committee.

5. That the property of the Photographic Society become the property of the Historic Society, and that the members of the Photographic Society be enrolled without entrance fee.

6. That the union date from the 31st March, 1858, if the preliminary arrangements be complete by that time.

[The number of members of the Photographic Society is forty-five; and it was suggested that the Historic Society *Council* should resolve to fill up the first three vacancies in their own body by members of the Photographic Society, or to recommend them for that purpose.]

In reply to members, the CHAIRMAN stated that every disposition was shewn by the deputation from the Historic to meet any reasonable desire on the part of the Photographic Society; that it was intimated that photographic intelligence would be acceptable on every occasion, and whenever sufficient matter could be provided, so as to exhaust an entire evening, the council would have great pleasure in setting an evening apart for that purpose.

On the proposition of Mr. BELL, seconded by Mr. LEITHEAD, it was then unanimously resolved, "That the terms which had been agreed upon by the delegates be accepted by the society."

It being necessary that this resolution should be submitted at another general meeting, for the purpose of a second time receiving the sanction of three-fifths of the members then present, it was resolved that another meeting should be held on Tuesday, 8th February.

A vote of thanks to the Chairman terminated the proceedings.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

THE ordinary monthly meeting of this Society was held in the Chorlton Town Hall, on Thursday evening, Jan. 14th, Mr. DEANE in the Chair.

After the minutes of the previous meeting were read by the Hon. Secretary, Mr. HEPWORTH read the following essay, containing "*An Historical Sketch of the Photographic Art—its present influences and prospective development, applications, and uses:*"—

The rapid progress of photography during the last few years is no less remarkable than that its existence as a scientific art should be of such modern date, when we bear in mind that the great source of light, heat, and actinism has shed its radiance over the world for so many thousand years, and that silver, the principal agent at present employed, was one of the first metals of which man possessed any knowledge, and with several of the compounds of which the alchymists were intimately acquainted. Many of the effects of light upon colour, too, must have been observed for ages, bleaching some and deepening others, yet the application of these to any practical purpose was reserved for the philosophical minds of the present century. Mr. Wedgwood, in 1802, appears to have been the first to avail himself of the property that light possesses of blackening the nitrate of silver when in contact with organic matter, yet both he and Sir Humphrey Davy failed to fix the impressions that were obtained by this, the first imperfect printing process; and photography seems to have been abandoned till 1814, when M. Niépce, of Chalons, directed his attention to the production of pictures by light, but by a process that was for several years kept secret. He appears to have experimented for about ten years alone, when he became casually acquainted with M. Daguerre, between whom a sort of partnership seems to have subsisted. The sensitive surface used by Niépce was a thin layer of bitumen, obtained by pouring upon stone tablets or metallic plates a sort of varnish composed of asphaltum, oil of lavender, and petroleum; when dry they were ready for use. This bitumen has the property of hardening on exposure to light, and of becoming imperfectly soluble in liquids that previously dissolved it most readily; he had only, therefore, to submit his plates, after exposure in the camera, to the action of these for a short time, to remove such portions as were unaffected by light, and thus to obtain the first permanent pictures of which we have any record, though they required an exposure of several hours to produce them.

In January, 1839, Mr. Fox Talbot communicated to the Royal Society his photographic discoveries, which consisted of the preparation of a surface of chloride of silver upon paper; on this he obtained a negative copy of an engraving, leaves, lace, &c., by placing them in contact and submitting them to the influence of light, and from the negative thus obtained, on similar sheets of prepared paper, was enabled to procure any number of positive prints, and these were fixed by the application of a saturated solution of common salt, in which chloride of silver is soluble to some extent. The patent for what is called the calotype or Talbotype was not obtained till 1841, a process so well known that it will be unnecessary for me to describe. This was even more sensitive than the beautiful process of Daguerre, which was given to the world by the French Government about six months after Mr. Talbot's first announcement in 1839. I well recollect with what wonder I gazed upon the first daguerreotype that I beheld about sixteen years ago; it was at the meeting of the British Association for the Advancement of Science, held in Newcastle-upon-Tyne, and many of you who are now listening to me will, I doubt not, have experienced similar feelings, for, despite, the wonderful discoveries that have since been made, I question if any process has produced such marvellous accuracy of detail and delicacy of light and shade as can be procured by the employment of the iodized silver plate. The Daguerreotype process was, however, at first extremely slow, more especially before the employment of bromine as an accelerator; besides, it required the face of a sitter for a portrait to be smeared with whiting. I recollect an example of this: an intimate friend of mine who took considerable interest in all scientific affairs, thought he would try his hand at photography; he procured the necessary apparatus (and these were in those days very inperfect in comparison with what we are now enabled to obtain), prepared his plate according to the most approved rules, chalked his face till he resembled a plaster cast, seated himself in his garden on a hot summer's afternoon with the sun beaming upon him, got a friend to focus and adjust the camera, and resigned himself to the influence of a July sun. Now this gentleman was somewhat stout, and consequently the perspiration streamed down his face during the fifteen minutes that he underwent the process of frying, and this in its descent of course removed the chalk, till his face somewhat resembled a modern map of this country intersected by railways; he sat his time however, then ran with impatience to see the result of his fortitude, and after all did not obtain a trace of his countenance on attempted development. Whether this arose from imperfect manipulation I am not prepared to say, but it will serve by contrast to shew what a wonderful improvement has since then been made in rapidity of action. The discoveries of Talbot and Daguerre are epochs in the history of photography, and from that time till now its progress has been most extraordinary. They were succeeded by many discoverers of minor importance, who gave to the world a host of processes of various degrees of merit. Sir John Herschell and Mr. Hunt stand pre-eminent in this respect, and many and valuable are their contributions to the scientific art. To them are we indebted for the chrysotype, cyanotype, energiatype, chromatype, and others. Sir John Herschell, too, was the first to employ glass plates for supporting a sensitive film; this was in 1840. He was led to try this from observing that the calotype failed to produce such delicate results as can be procured on metallic plates, in consequence of the rough texture of the paper fibre. His method was to precipitate chloride of silver from very weak solutions, and allow it to deposit in a state of fine powder on a plate of glass placed at the bottom of the vessel used for precipitation; then by very carefully removing the surrounding liquid a layer of chloride in a fine state of division was obtained. This plan is ingenious but difficult, and unadapted to the present requirements of the photographer. For the albumen process, by which the beautiful transparent stereoscopic slides are produced, we are indebted to M. Niépce de Sainte Victor, nephew of the original discoverer of the same name; he published his mode of manipulation in 1848, but this process is better adapted for positive prints than for use in the camera, for, as well as being slow, it is deficient in that softness which constitutes the beauty of a good photograph. M. Le Gray, of Paris, was the first to suggest the use of collodion for supporting the iodide of silver upon glass, and Mr. Scott Archer to carry this suggestion into practice. The process, as described by the latter gentleman, in 1851, continues to be practised with no material alteration, and certainly no discovery has tended more to popularize and advance the photographic art than this has done, for it has simplified the manipulation, presented us with a more sensitive film, enabled us to produce results hitherto unattainable, given an impetus that seems to increase with accelerated power, and casts such a fascination around the art as completely captivates the minds of those who are engaged in it, and ever leads them to perseverance under the greatest discouragements. Still the mind of man remains dissatisfied so long as there is a nearer approach to perfection to be attained, and the further we progress the more desirous are we to press forward to this goal; consequently imperfections, or rather I should say inconveniences, were soon experienced, and the last few years have been prolific in modifications to meet the requirements, more especially of those who work out of doors, the great drawback of the collodion process being want of portability in the apparatus and chemicals required. Various plans for preserving the sensitiveness of the plates were therefore devised to obviate this difficulty. The use of deliquescent salts, honey, glycerine, and oxymel were tried, and with considerable success; but as they always retain a certain amount of moisture, and consequently are liable to the adherence of dust, they were superseded by various dry processes, in which the surface was protected by a coating of gelatine, metagelatine, dextrine, albumen, or other substances. The collodio-albumen process of M. Taupenot is, however, I think, the most worthy of attention, both for its keeping qualities and admirable results. The utility and convenience of dry processes is indisputable, but that they will ever be as sensitive as moist plates is not to be expected, inasmuch as moisture is essential to facilitate rapid chemical action. The waxed paper process of M. Le Gray has produced such beautiful results when applied to landscape photography, as to leave but little to be desired; it seems to stand in the same relation to the calotype as the process of M. Taupenot does to collodion. Such is a brief and imperfect sketch of the photographic art. For the sake of brevity I have omitted a reference to several topics that might interest you; the limits of one essay will not, however, admit of my doing full justice to so instructive a subject, and I will now attempt to describe its present influences. These, for the convenience of distinction, may be divided into three classes,—social, intellectual, and relative.

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* Except for explicitness this is unnecessary, as it is included in No. 1.

† From another draft minute of the proceedings it appears that this proposition was to the effect, "that it be allowable to the authors to print," &c.

The social influences of photography may be best exemplified, I think, by glancing at the assembly that is now collected within this room, and by calling your attention to the number of similar societies established in most of the important British and continental towns: men of different stations of society, and of various degrees of mental culture, uniting with one common object in view—the advancement of that art so universally admired and practised throughout the civilized world. Nor do the advantages of such societies terminate with the mere attainment of the purpose for which they were instituted, but tend also to foster a more friendly feeling amongst their members, to remove the baneful spirit of jealousy, and prompt those who are professionally rivals generously to impart, for the benefit of all, such knowledge as experience has enabled them to acquire, and to depend alone for success upon their superior skill, application, and artistic taste. Neither must we forget the benefits that photography has conferred on society, by casting a cheering ray of influence into almost every family in the land, for now-a-days there are but few houses, from the cottage to the palace, that do not contain specimens of our art. Perhaps I may here be allowed a digression, to remark that I am not one of those who would indiscriminately decry the cheap portrait system, though it has its abuses; men must to some extent suit their prices to the locality in which they reside, and if all were to adhere to the charges that some think necessary to uphold the respectability of the profession, the poor man would be totally deprived of the gratification of seeing his humble dwelling adorned with the portraits of those who are dear to him; he possesses the ordinary pride, instincts, and feelings of humanity, sometimes even in a stronger degree than those who claim to be his superiors; these have a right to be respected, and price is to him a matter of vital importance. Therefore the photographer who places this gratification within his reach, confers a boon that meets his sincerest gratitude. From the peer to the peasant the hearts of thousands have been gladdened and consoled by the possession of portraits of those who are united to them by the ties of kindred, affection, or esteem. None, I believe, but those who have experienced it, can appreciate to the full the value of this blessing conferred upon society. The widow could tell you with what emotion she gazes day by day upon the semblance of the lost partner of her joys and sorrows—the mother with what rapture upon the reflected countenances of those loved ones who are scattered abroad engaged in the ordinary pursuits of life, and between whom lands and seas may intervene—the child at school upon the fond, indulgent countenances of his parents—the lover upon the image of the idol of his heart—the man of the world upon that of those who have won his friendship or esteem—and people generally upon the faces of the eminently good and excellent of the earth. All of you must have felt this influence in some degree, it will, therefore, be superfluous for me to dwell more fully upon it.

In an intellectual point of view the influence of photography has been such as to excite in the mind a love for all that is noble, grand, and beautiful in nature and art, and by leading us from effects to causes, to create a desire to become more intimately acquainted with those laws by which the governance of the universe is maintained, and which are ever seen to act with as undeviating perfection upon the smallest particles of matter as in the motions of the planetary world.

Every man, to be a really intelligent and successful photographer, must possess a good knowledge of the properties of the substances with which he works, and such an acquaintance with chemistry as will enable him to understand the decompositions that ensue in the processes that he employs, otherwise he will be continually groping in the dark, and dependent upon others for that aid which a more perfect knowledge would have enabled him to dispense with. Photography has excited a desire for this knowledge; books and teachers have not been wanting to communicate it, and many, I am happy to think, have availed themselves of the opportunities afforded for its acquisition. I would ask many who are present if they do not now possess such an acquaintance with the rudiments of chemistry, optics, and the properties of light, as they would never have attempted to acquire, had they not been stimulated by the practice of this delightful art. Has the eye not been educated to appreciate more fully the beautiful—the taste elevated and refined, and do they not (apart from the mere practice of photography) feel that they are wiser, and consequently happier men. Nor does the development of the intellect end here; photography has become a teacher to those who know nothing of it as a scientific art; aided by the stereoscope, it has made them more intimately acquainted with the scenery and inhabitants of distant lands than books or verbal description could ever have done. The world has been ransacked, as it were, to bring before us all that it contains that is worthy of admiration—the photographer with his camera has mounted the snowy Alps and trodden the torrid sands of Egypt, wandered through the peaceful vales of Switzerland and over the battle-field of Inkermann, sketched the crumbling palaces of the mighty Cæsars and the splendid structures of modern times, the statuary of Greece and Rome, the swarth Nubian and the fair inhabitant of Western Europe, the barren mountain and the verdant plain; and this, too, by the unerring pencil of nature, with a truthfulness that the most accomplished draughtsmen can never hope to rival. By this means may we now see more of the world in an hour, and at our own fireside, than months of toilsome travel would enable us to do.

The influence of photography as a teacher may be aptly exemplified by the interesting exhibition that may be daily seen at the Manchester Mechanics' Institution, where small photographs, illuminated by the oxyhydrogen light, are magnified to cover a screen thirty feet square. Description would fail to convey an adequate idea of the beauty of most of these, I may remark, however, that whilst some are inferior as photographs, yet capable of imparting a vast amount of instruction, others are of surpassing brilliancy, and shew by the rapturous applause with which their appearance is greeted that they at once impress the mind with wonder and admiration, and that their merits are fully appreciated. Where so many are beautiful it will be difficult to make a selection, yet few, I think, can gaze without emotion upon that magnificent statue erected to the memory of the gifted and much lamented Malibran, who died so suddenly in this town some years ago; there is something that is absolutely angelic and ethereal in the aspect of the picture as it gradually fades from sight, whilst the organ gives utterance to the sweet plaintive melody that was sung by the accomplished vocalist but a few hours before her melancholy decease. Other specimens of statuary are but little inferior to this; the copy of a gigantic vase, and the interior of a cloister are also especially worthy of attention, and are perhaps the best photographs that are there exhibited. Frith's Egyptian pictures require no comment of mine, for whoever beholds them and listens to the clear and instructive description given by the clever and energetic secretary of the Institution, cannot quit the building without having received both gratification and a large amount of information. The value of this Exhibition would, I think, be much increased, however, by the addition of pictures of local interest, and I would suggest, that if any of our members are in possession of such, they cannot do better than send copies of them to the committee of tho Institution, by whom, I have no doubt, they will be thankfully accepted.

Did time permit, I could shew that photography is not destitute of a moral as well as a beneficial physical influence, by weaning men from pursuits that degrade and enervate, whilst it substitutes those which purify the mind and invigorate the system; but to avoid trespassing too much upon your patience, I will next treat of photography in relation to the industrial arts. Its influence in this respect has been most remarkable and beneficial; it has not only given new impulse to several old branches of industry, but called many new ones into existence. To be satisfied of this it will merely be necessary to direct your attention to the multitude of advertisements crowded on the covers of our journals and contained in the columns of our daily papers. Paper makers vie with each other to produce an article suitable for the uses of the photographer; chemists to supply the constantly increasing demand for the products of their art; grinders of lenses to furnish the most perfect instrument that modern science enables them to produce; workers in brass to give perfection to the movements of these; manufacturers of porcelain to provide us with baths, dippers, levelling stands, dishes, and various useful implements; makers of cameras, plate boxes, camera stands, stereoscopes, mats, preservers, cases, passepartouts, India rubber and gutta percha articles, colours, brushes, varnishes, collodion, glass and metal plates, in fact the multitude that is daily labouring to supply our requirements, bears testimony to the benefits that photography has conferred upon the industrial arts. In the future of photography there is such a scope for the imagination to revel in, that unless it be restrained by the curb of reason, we shall be led into the most extravagant exaggeration. Beautiful as the present productions are, and faithful representations as they are of nature, still there is much to be acquired, and the mind will not rest satisfied till greater things are accomplished, or lengthened experience has shewn that it is impossible to imitate her more closely. The great end to be attained is a fac-simile of nature's magnificent colours, the finest copy will ever be inferior to the original so long as we cannot imitate her in this. To say it is impossible is an assertion as rash as it would be unreasonable, for there is no more improbability of this than there was twenty years ago of our being able to obtain the results we daily behold; besides, there are now and then faint glimpses flickering as it were over the plate, sufficient to inspire us with hope for the future. Several have obtained a decided colour in foliage, others the bright red reflections of brick buildings, and the true colouring in light and shade of stone coloured edifices. On the Daguerreotype plate bright impresssions of the solar spectrum have been obtained, as well as very close copies of highly coloured drawings; but the latter have unfortunately been as evanescent as they were beautiful. You will be aware, too, that a Mr. Hill, of New York, was said some years ago to be in possession of fifty pictures obtained by him in all the beauty of nature's colouration; the process employed by him was to have been disclosed when more completely perfected, as this has never been done we may reasonably question the truth of the statement; besides, without wishing to cast any aspersion on the character of individuals, the intelligence comes from a very questionable quarter, as the *long bow* is a weapon that is apt to be drawn to the fullest extent by our brethren across the Atlantic. The pictures were said to have been obtained on iodized silver plates by the application of a new chemical preparation. Unsatisfactory as these results appear, I still most confidently expect that the ardent wishes of the most enthusiastic photographer will ultimately be crowned with success. I do not, however, believe that it will be accomplished by the deductions of reason, but rather by some happy accident; men often stumble on the most brilliant discoveries, and so, I believe, it will be in this case. To assume also that we have attained the highest degree of sensitiveness in our preparations is, I think, equally unwarrantable, and if not, what may we not expect from the future of photography. The difficulty experienced in photographing the moon consists in the necessity of moving the sensitized plate in a corresponding degree with the motion of the earth, so as to keep the object constantly in the field of the camera; but if a sufficiently increased sensitiveness be obtained, this will be rendered unnecessary, and the planetary bodies be photographed as perfectly as objects in a state of rest. What interesting historical pictures, too, might be obtained of the most important events that take place, and illustrative of the manners and customs of a country, coronation, marriage, and funeral processions, riots and revellings, in fact of assemblies collected for any important object. Some of you may smile with incredulity at this, and attribute the idea to the warmth of enthusiasm; but have not similar effects been shewn by Mr. Fox Talbot, in his celebrated experiment at the Royal Institution, when he caused a piece of printed paper to be attached to a rapidly revolving disc, and copied it with such accuracy by the light of a strong electric spark, that the letters were perfectly legible. The brilliancy of the light in this case no doubt compensated for the want of sensitiveness of the film, still I do not see any reason to question the possibility of copying bodies when in rapid motion by ordinary light, if we can but sufficiently increase the sensitiveness of the surface employed. Imagine, if you can, the interest attached to an accurate picture of a crowd of persons agitated by a variety of passions and feelings, and this, too, probably rendered as endurable as the substance upon which it is taken, for burnt in photography promises much for the future, not only as contributing to the ornamentation of various articles of taste and utility, but also as enabling us to procure permanent records of interesting and important historical events. The purposes to which this branch of the art is applicable is legion; our fictile ware will, I doubt not, be ornamented with faithful transcripts of nature, instead of the monstrosities that too often disfigure it. The time-hallowed willow pattern will have to give place to more elegant designs, and as noblemen have their crests engraved upon their plate, so may they also have their dinner and tea services adorned with views of their residences and the surrounding landscapes, and hall-lamps, glass shades, staircase windows, and other objects for which transparent media are used will, I doubt not, ere long be ornamented by this art.

Photo-lithography and photo-galvanography lead us to expect that the future will be prolific in illustrated literature; how greatly then will the interest in our perusal of the books on Travel, Natural History, and other subjects be increased, when we feel assured that they contain true representations of the objects described, instead of being, as they too often are, dependent upon the imagination of the artist. Suppose, for instance, that in reading of some of the wonderful monuments of antiquity, how much the interest will be enhanced when you feel certain that you see it as it is; that the picture even shews you the mosses and tufts of grass as they cling to the hoary ruin, and that every crevice, leaf, and lichen, is depicted with the greatest fidelity. I believe, too, that the long neglected Daguerreotype will be reinstated in general estimation; for, as I before stated, I do not think that any of the more recently discovered processes can compare with it for microscopical accuracy of detail and delicacy of shadowing: it has some defects, but these, I think, will be overcome, and by it alone, I think, we can ever hope to obtain nature's reflection of herself in all her gorgeous beauty of colouring. Nor is it improbable that the silver salts will, to a considerable extent, be superseded by others that are cheaper and likely to give more permanent pictures; for we find that those of iron, copper, nickel, and other metals are already used with considerable success, especially the chromates, these will, in all probability, completely revolutionize the photographic art. I might also allude to the further application of photography to criminal detection, the recognition of dead bodies, and other practical purposes; but this essay has already extended to such an unusual length that I will not trespass further upon your indulgence.

It only remains for me now to give you a general summary of this paper, which I trust will not prove unprofitable, but repay you in some degree for the patience with which you have listened to it, for which I most cordially thank you.

The historical part of my subject is necessarily brief and imperfect, but sufficient, I trust, to shew the rapid progress of the art, and to convince us that it has not yet attained the high standard of excellence that it will eventually reach; for where so many active minds are engaged in one interesting pursuit, it is not possible for it to remain stationary, but must continue to advance, and, ultimately, fulfil our most sanguine expectations. I have endeavoured to shew you its influences in a social, intellectual, and relative point of view; that it unites men into societies for mutual edification—tightens the bonds of love, friendship, and esteem—elevates man morally and intellectually—awakens in him an admiration for all that is noble, grand, and beautiful, in nature and art—prompts him to become acquainted with the laws established by his Creator for the governance of the universe—weans him from pursuits that would degrade and enervate, whilst it inclines him to those which improve his mind and invigorate his physical constitution—it stimulates industry, inculcates patience and perseverance, and, I doubt not, tends to make us better men, and more intelligent members of society.

At the conclusion of the above an animated discussion ensued on several of the arguments advanced by the essayist, and an unusually protracted meeting terminated by votes of thanks being passed to Mr. Hepworth and the Chairman.

A conversational meeting will be held on the second Thursday in February.

FRENCH PHOTOGRAPHIC SOCIETY.

At the meeting of the 18th of December, M. Regnault, member of the Institute and President of the Society, occupied the chair. Amongst other matters then communicated and presented was a large collection of prints from paper negatives, which were obtained by M. Civiale, by the following process:

The paper employed being *papier Saxe negatif*, of the weight of about fifteen pounds the ream.

The bath for iodizing contains

Céreoléine (10 grammes* of wax in a litre of alcohol of 40°)	1000 grammes
Iodide of potassium dissolved in alcohol of 36°)……………………	32 grammes

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[*] The gramme about 15 grains, and the litre about 2 pints.

The paper is left for two hours, at least, in the bath, then it is suspended by a corner to dry.

The sensitive bath contains—

Distilled water	1000 grammes.
Fused nitrate of silver	60 „
Nitrate of zinc (crystallized)	24 „
Acetic acid	30 „

After immersion the excess of nitrate of silver is removed by three successive washings in distilled water. The paper for the day may be made sensitive in the morning or overnight.

In operating in the Pyrenees, where variations in altitude of more than 2000 yards were encountered, the exposure in the camera varied, in sunshine and shade, from six to twelve minutes.

The developing bath contained—

Distilled water	1000 grammes.
Gallic acid	3½ „

To this a little of the washing water containing nitrate of silver was added. After development the picture was four times rinsed in common water, and then fixed in a solution containing—

Common water	1000 grammes.
Hyposulphite soda	200 „

Finally the negatives were washed in common water during eight or ten hours, the water being often changed.

M. **Girard** read a note by M. Frank de Villecholes, upon "*The Use of Dry Collodion.*"

Amongst the dry collodion processes which have been published, several have given results generally satisfactory. Nevertheless many operators succeed only with difficulty, and desire a newer and simpler method than Taupenot's, the gelatine process, &c.

The simplest method, "par excellence," is that of M. l'Abbé Desprats, which consists simply in washing the plate on its removal from the bath. This method, which has long given me very uncertain results, has been abandoned by the greater part of those who have attempted it.

Nevertheless from some information I received I tried again the method of M. l'Abbé Desprats, and convinced myself that my former failure arose from insufficient washing. Sensitive plates, washed for one or two minutes in a stream of water, succeeded but imperfectly, while similar plates, washed in the same way and left to drain for five minutes, and then rewashed as at first, gave a perfect picture.

Certain collodions are not favourable in this case, especially those containing iodide of zinc or cadmium, which do not succeed, unless the bath is strongly acidulated by acetic acid.

I expect M. l'Abbé Desprats' method, properly carried out, will supersede all others.

M. **Montreuil** remarked that the process just alluded to was the same as that indicated by him. He had learnt a year ago that all collodions well washed succeeded dry on an exposure three or four times the length of that used in the wet way. This year he had taken, on a tour, sensitive plates for eight, fifteen, and even thirty days, developing them only on his return, and all had succeeded, excepting some which had contained iodide of cadmium, the cause being inexplicable. The great point was to wash sufficiently; common water might be used.

M. **Vaillat** confirmed the observations of MM. de Villecholes and Montreuil; he saying that he had succeeded very well, by following the same method.

M. **Leborgne** stated that by mixing nitrate of lead with the nitrate of silver in the bath for collodion, he obtained finer results. He used a weak solution of gallic acid, in developing, instead of pyrogallic acid.

[Want of space prevents our giving so complete a report of this meeting as we could wish, but in our next we shall publish the paper which was read by M. Becquerel on the "*Production of Natural Colours by Light,*" to which we would call particular attention.—Ed. L. & M. P. J.]

MR. SUTTON'S DEVELOPING PROCESS.

The problem of printing on plain paper has occupied much of Mr. Sutton's attention for some years. As a matter of taste, he extremely dislikes prints on albuminized paper, and no doubt there are many who probably entertain the same feelings, and it is for them the present article is especially intended. Those who prefer that peculiar kind of vigour and brilliancy which is exhibited by a piece of black sticking plaster, or a well-polished Wellington boot, to the depth and vigour of the blacks of a fine engraving on plate-paper, need not concern themselves with this process; for the best results which it appears capable of yielding do not surpass, in point of vigour, the best proofs from the press of the copper-plate printer.

With respect to this process;—let the copper-plate or lithographic printer select, in the first place, a paper of the peculiar tint which he thinks most suitable for his purpose, and in the second place, an ink of the most appropriate and beautiful tint. This done, let him exert his utmost skill in producing a fine proof. The result will be a proof on India paper, either in common printing ink, which is of a cold greenish black tint (very beautiful), or in a fancy ink of some tint lying between a purple brown and either a green or purple black. Now, Mr. Sutton affirms that *this* photographic printing process is capable of yielding positive prints which will bear the most critical comparison, as regards artistic effect, with the best copper-plate or lithographic proof. You may lay the photograph on the finest engraving or lithograph, and find it impossible to say that one is superior to the other in effect; both being equally vigorous and beautiful, and the effects being of the *same kind* in both. But for the peculiar truthfulness and unconventionality of the photograph it might be mistaken for an engraving. The process has also the merits of economy, and the prints are capable of withstanding the action of destructive tests, such as milky hypo, far better than those which are obtained by the common process. Mr. Sutton, however, admits that the *finest* results are only obtained under certain favourable conditions, with respect to which there is at present some obscurity. He has not yet completely made out the subject of tints, as regards the production of effects with absolute uniformity: but the difficulties which remain only appear to be such as a little perseverance will surmount.

The operations are very simple, and the want of uniformity in the results appears to depend mainly on the variable condition of the nitrate bath. Variations in the amount of light, and degree of temperature, affect the result of course to some extent, but he has obtained some of his best prints in the gloomy month of November, and apparently under the most adverse circumstances of light. His dark room is always heated to 60° Fahrenheit, at least. A temperature of 70° appears to be about the best, and he believes it to be impossible to work successfully at a lower temperature than 50°. The process requires no toning bath.

Any good photographic paper may be employed, but different papers require different treatment. The operations on Hollingworth's THIN paper are as follows:—First, for the salting bath take—

Filtered rain water...............	1 ounce.
Common salt	from 6 to 10 grains.
Lemon juice.........	from 1 to 3 drops.

Use a fresh lemon, and do not on any account cut it with a steel knife. Stick a pointed piece of wood into it, or bite off a piece of the peel. If you introduce any citrate of iron into the paper, the nitrate bath will turn as black as ink.

Observe, there is no gelatine, nor serum, nor any troublesome mess in the salting bath. The bath is nothing but salt and water, with a lemon squeezed into it.

Filter the solution through a fine cambric handkerchief, laid in a glass or gutta percha funnel (not block tin), and use it at once. When done with, throw it away, and give the lemon to the cook. You may either immerse the papers in the bath a great many at a time, or float them on it one at a time. They should remain *on* the bath for at least two minutes, and if immersed, the time of immersion may vary from five minutes to twenty-four hours. A rather long immersion seems to give the most vigorous prints, and not to cause the print to sink in the paper and become mealy. Still, as the fine grain of the paper is somewhat injured by long immersion, it would no doubt be a good plan to submit it to pressure, when dry, between glazed mill-boards in an engraver's press.

The papers may be hung up by one corner to dry. Mr. S. cannot say how long they will keep, for he has invariably used them within a week or two of their preparation.

The next operation is to excite the paper on the nitrate bath, which is made thus:—

Distilled water.....................	1 ounce.
Nitrate of silver......	from 20 to 30 grains.
Lemon juice	10 minims.

Filter the bath, and float the papers on it, for two or three minutes. Then hang up to dry by one corner. Never dip a pin into the nitrate bath, or it will turn the bath black.

The paper may be excited over night, exposed the next morning, and the picture developed in the evening (*i.e.* twenty-four hours after it has been excited).

Expose in the pressure-frame until a faint image of the picture is perceived.

Develop with a solution of gallic acid, freshly made; or to speak more clearly, add four grains of gallic acid to an ounce of *distilled* water; shake up well, and use at once; filtered of course.

The cleanest and best way of developing the picture is to turn up the edges of the paper, and make the print into a tray. Lay it on a sheet of glass truly horizontal, with a piece of clean white blotting paper under the print; then pour a little gallic acid solution on the darkest part of the print, and spread it all over as quickly as possible, with a bent glass rod.

Push the development to the proper stage; then wash the print in clean rain water, and place it immediately in the following hypo bath:—

Clean rain water...	..20 ounces.
Hypo-sulphite of soda	1 ounce.

Let it remain in this fixing bath for fifteen or twenty minutes; then throw the hypo away, and wash the print well in several changes of water, under a tap, and leave it to soak for several hours in a tub, with other prints, changing the water several times. Lastly, hang it up to dry. The print is then finished.

[In our next we shall perhaps be enabled to give some further information on this process, pointing out the modifications which should be introduced when foreign papers are employed, &c.]

CORRESPONDENCE.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—I have from the first been a subscriber to this *Journal*, as I have been to other Journals devoted to the art, but not one of them has given me so much satisfaction as the *Liverpool Journal*, on account of its recording the experience of careful and excellent photographers *without reserve*, and in a style of language adapted alike to the tyro as the more advanced student. But as a friend who loves his friend, and longs for his bi-monthly appearance, I claim the privilege of making the following remarks, premising that they are prompted by no personal feeling, but by a desire to further the interests of the art.

It must have been painfully evident to readers of late that dissensions have broken out in the camp, at least among the chiefs, and when this occurs on the field, there is an end to all success or triumph over difficulties and obstacles, as the pages of history amply shew. And so in photography, when gentlemen resort to personal abuse and recrimination, the interests of the art must suffer, and spleen and ill humour run rampant through their every thought. I would not, were I competent, set myself up as a judge in the various *personal* questions under discussion in the Liverpool and other Journals, but this I will say, that they take their rise, like other evils, from very trivial beginnings, which a little forbearance or charity on either side would have altogether avoided. However, were the feelings of the parties confined to their own breasts, or at farthest to their manuscripts, then the public would have no right to grumble, but assuredly the readers of this and other Photographic Journals for the last six months, who have been favoured with page after page of irrelevant satire and abuse, have every reason now to call for a cessation of hostilities. For, to the photographic world in general, what does it matter who is the inventor of such and such a MODIFIED process, so long as the modifications or inventions are either capriciously suggested, or fail in the desired effect. It is among the small fry that that this petty jealousy arises, for men like Talbot, Archer, Daguerre, Le Gray, and others, can well afford to leave the question of priority of discovery to the public to settle, without interference on their part. To enter more into detail and point to individuals, would be a sheer waste of time, as it must be evident to whom I allude.

I would much rather see the several Journals occupied, if nothing better, with accounts of photographic excursions, as I feel assured from my own experience that many of these would be highly amusing and interesting to photographers.

I noticed that in the discussion after the meeting of the Manchester Photographic Society, the attention of members was directed to what is called a singular phenomenon, in the shape of a white streak of light round the border of the sky, the trees, &c. I have noticed this in a slight degree once or twice, but have attributed it to the law of contrast, which I think sufficiently accounts for it. Chevreul in his work on colour, exemplifies the effect of a dark colour in juxtaposition with a white one, and tells us, what can easily be tried, that the dark in proximity to the white gains something in depth, while the white receives increased brilliancy. If there was any other solution suggested, I would be glad to see it noticed in the *Journal*. I am, your obedient Servant,

Glasgow, 22nd Jan., 1858. AMICUS.

ANSWERS TO CORRESPONDENTS.

Thos. Gulliver.—By adding chloride of barium, you have thrown down part, if not all, of your silver as chloride. Filter to collect the chloride: nitrate of baryta will be left with any nitrate of silver remaining in solution. Perhaps it will be best to precipitate all the silver, by adding muriatic acid or common salt; then collect the chloride, and place it in a dish, with thin strips of the best hoop iron; add a little weak muriatic acid, and leave the whole undisturbed for several days. Metallic silver and a solution of chloride of iron will be the result. Wash the silver with diluted muriatic acid, to remove any adhering iron particles; rinse with water and dry. The silver separates as a powder, and may be dissolved in nitric acid to form fresh nitrate, or kept until, from various sources, enough metal has been obtained to offer for sale to dealers in silver.

Armagh.—Diminish the light just overhead, and have a lighter material on the ground. M. Claudet uses a hand-screen of black velvet, with which he shades off any objectionable light of the character you describe. A glass room is desirable, although you may certainly manage with your present arrangement.

J. S.—For the Daguerreotype, the best English plates are to be preferred. They are made by laying pure silver in a mass upon an ingot of copper; the two metals are passed together through rollers until extended, so as to be of the required thinness. The best makers arrange so as to roll the silver surfaces face to face, thus avoiding as much as possible accidental contamination. Such plates can be repolished many times, and will, we think, prove to be the most economical for a beginner. Such plates after rolling are "planished" by striking every part of the surface with a bright heavy hammer. M. Claudet has this planishing done under his own eye, his plates being afterwards polished by a perfectly *pure* species of rotten stone, applied by means of oil to a velvet buff, worked by a lathe. The Baron Gros, now the French plenipotentiary in the Chinese affair, and one of the most successful of Daguerreotypists, electro-silvers all his plates before making them sensitive, which he considers essential.

X.—Pure nitric acid may be obtained by distillation from a mixture of pure nitre and pure oil of vitriol, with or without a known small quantity of water. The *strength* of the acid depends on the water added or already contained in the oil of vitriol. A comparatively weak acid may be concentrated by distillation from strong oil of vitriol, which absorbs the water. The strong acid has a specific gravity of about 1.5; a pure acid not quite so strong is of about specific gravity 1.4; a third acid of a commoner kind may not be much over 1.3. Bear these points in mind, and you will see the utility of tracing out the history of your sample of acid, and the necessity of learning its strength, &c., in order to be exact in your experiments. The acid called "nitrous acid" ought never to be used in any formula.

Stereoscopist.—You may depend upon it that you are utterly wrong in insisting that a separation of the lenses of 2½ inches is sufficient for "all practical purposes." The fallacies afloat relating to this subject arise from an abuse of the word "natural." The stereoscope is an aid to our imperfect powers of vision—imperfect as regards our ability to appreciate completely the forms and characters of distant objects; and it is no more unnatural, or monstrous, or exaggerated, to learn the true forms of distant objects, by means of the stereoscope, than it is unnatural to see the scales on a butterfly's wing by means of the microscope, or to read distant print by means of the telescope. This is the substance of Dr. Tyndall's view, as recently expressed in a lecture forming part of his course on optics, now being delivered at the London Institution. With such men as Wheatstone, Tyndall, Dové of Berlin, &c., &c., on their side, the advocates of separating the cameras as the object is more distant, can well afford to wait patiently till their antagonists have floundered into some common philosophical definition of the true principles of stereoscopy.

"Sol Senex," "Thomas Gulliver," &c. in our next.

Erratum.—Page 23, twelve lines from top of first column, for *Levenier* read *Leverrier*.

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TO PHOTOGRAPHERS.—The Council of the ART-UNION of LONDON, being desirous of presenting a Set of PHOTOGRAPHS to their Members, invite TENDERS to be sent in on or before the 13th of February next.
Full particulars may be learnt at the Office.
GEORGE GODWIN, } Honorary
LEWIS POCOCK, } Secretaries.
444, West Strand, Jan. 5th, 1858.

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The

Liverpool & Manchester Photographic Journal.

New Series. No. 4, Vol. II.—FEBRUARY 15, 1858.

From circumstances with which the reader will be made acquainted at the termination of these leading remarks, we feel a greater difficulty than usual in determining on the topics which should form the burden of our *address to-day*. There are so many subjects which might be dwelt on with equal pleasure and advantage, but which require space and repeated exposition for their full treatment, that we scarcely know how to single out with satisfaction any one of them.

In courtesy to our Liverpool friends, who have earnestly taken up the subject of plain and coloured glasses for photographic rooms, we will begin by directing attention to the letter of Mr. Glover, written on behalf of the experimental committee, lately appointed out of the body of the members of the Liverpool Photographic Society. It is the desire of this committee that thoroughly trustworthy experiments should be carried out, to ascertain how far the different varieties of glass at present in the market, or likely to come into sale, are affected by continued exposure to light and air. This is a very important enquiry, and one that should receive the attention of all photographers. We intend, on our part, to send some samples of glass, in answer to the request of the committee as expressed through Mr. Glover's note, for the purpose of seeing how far our suggestion as to the avoidance of oxidizing materials in the composition of ordinary glass might leave any traces of iron (which are unavoidably present) in the state of protoxide rather than peroxide,—the peroxide giving a yellow tinge where the protoxide would yield a bluish shade. We have this glass already in our possession, but of course have no proof of its durability. Then with reference to cobalt glass, it seems to be admitted that a deep blue tinge of this pigment is likely to change. Now why may not a lighter shade of the same colouring matter deepen in a proportionate degree? But this is anticipating the decision of experiment, and re-opening a controversy which we shall be happy to leave at rest for the present; if not for ever, for experiment will preclude all doubt in the matter. We think it desirable that some samples of the glass should be hermetically sealed in a glass tube filled with hydrogen, or some gas not containing oxygen, in order to see how far mere oxidation, in the dark, may change some of the specimens. Such tubes would, of course, enable us to preserve a standard set of specimens which could not well be objected to. It has not been found difficult to seal up strips of photographs in various gases, and there will be no difficulty in the way of treating slips of glass in a similar manner. We throw out this point for consideration.

Next to having the proper light and instruments comes the question of chemicals and photographic surfaces. Suggestions respecting experiments on collodion will be found in our last number, and we now repeat that we should be glad to find this matter in the hands of a committee. We would go so far as to require the experimentalist to prepare his own nitrate of silver, and iodide and bromide of potassium. There is no difficulty about getting from large bullion refiners pure silver; this dissolved in pure nitric acid, evaporated down all but to dryness, and then re-evaporated once or twice with water, to expel nitric acid, would give a solution from which crystals might be obtained ready for use, or to be heated first to *incipient* fusion in *platinum* or porcelain.

The iodide of potassium we would have prepared by the use of iodide of iron, by treating *pure* iron wire with *pure* iodine, then adding *pure* carbonate of potash, taking care to have iodide of iron in slight excess rather than otherwise. For such a case a little pure hydriodic acid might be prepared for the purpose of finishing the neutralisation of the alkali. We do not see why the bromide of potassium might not be made from the bromide of iron and carbonate of potash—the re-actions being analogous. We have much to expect from a set of experiments, conducted in concert, from pure materials such as we have here indicated. We dwell upon the desirableness of the home manufacture of the chemical substances to be used in these experiments, not from any distrust of our chief manufacturers, but only because we would have absolute certainty as to every part of the work. Peculiarities of manufacture may have to be observed for photographic purposes, inapplicable to ordinary chemical experience. We shall proceed in this manner ourselves, and would like to be able to compare *exact* notes with other experimenters.

But our space begins to grow narrow, and we can only briefly direct attention to two or three matters which are the subject of letters and communications to be found in another part of this impression. Mr. Forster's letter upon solar photography; the remarks upon the artistic treatment of photographic subjects, and the legal protection which it may be found necessary to invoke on behalf of genius and industry *versus* idleness and roguery, *alias* dishonest activity, will doubtless engage the attention of our readers.

We give, in another column, a report of the last meeting of the Liverpool Photographic Society, prior to its amalgamation with the Historic Society of Lancashire and Cheshire. It will be seen that the motion for amalgamation was unanimously confirmed, and so has passed away from the scene of its labours the Liverpool Photographic Society. May we hope that when, phœnix-like, it rises from its ashes under its new designation, its prospects may be more hopeful, and its career yet more useful than when it laboured, under the old distinctive appellation, in the "pursuit of knowledge under difficulties."

And now it is our duty to announce that with the present number our *editorial* connexion with this *Journal* ceases. We have, after due consideration, resigned our post to a gentleman who is well known, and well able to sustain the reputation of any photographic journal. There is not to be found a more zealous and able follower of photography than the *President of the Microscopical Society*—Mr. George Shadbolt. To him we consign the future destinies of this *Journal*. We have no fear as to the result; and in saying this we express all that it is necessary for us to insist upon. It would be a species of impertinence in us to utter complimentary phrases in respect of one who is so well known to our friends and readers. We shall, therefore, content ourselves with observing that Mr. Shadbolt's acceptance of the duties which we have hitherto so imperfectly (in our own estimation) performed, affords us a pleasure, which more than overcomes the sense of regret which we feel at retiring from labours which circumstances of health and occupation—of occupation as much as health—render it imperative on us to relinquish. We desire to thank sincerely all who have in any way aided us, and trust that nothing we have ever written has left for an instant anything but an impression of our sincerity in the cause we had at heart.

It is due to the publisher's enterprise, and to his liberal conduct in all matters relating to the *Journal*, to say that we have never had the slightest difference of aim or opinion, respecting any matters concerning the management or welfare of the *Journal;* and we may add that arrangements are in progress, by which this publication may more than ever be designated the Provincial Journal of Photography in this country;—Liverpool and Manchester (to place them *alphabetically*) forming an ample nucleus for further accretions of valuable materials.

ACTION OF LIGHT.

The following letters, addressed to the Editor of the *London Photographic Society's Journal*, are of much interest, as extending our knowledge of certain properties of light which have hitherto been only superficially observed.

REVERSED ACTION OF LIGHT.

SIR,—The letter of Mr. Jackson, in the November number of the Photographic Journal, and the discussion upon it, has recalled to my memory an experiment I made seven or eight years ago, before there was either Photographic Society, Photographic Journal, or, indeed, much interest taken in photography. While making experiments on the operation of light on iodized paper, I exposed a piece of negatively prepared paper under a small engraving, for two hours, in a bright summer sun. On removing the engraving, I was surprised to see a positive-looking copy, and on developing I produced the enclosed (Hilton's "Cupid and the Graces," from the *Literary Souvenir* for 1829). I endeavoured, without success, in various subsequent experiments, to produce agreeable lights in lieu of the dull brown ones which this copy exhibits. I threw the results aside as of no value, but kept the enclosed, and recorded on the back the manner of its production as a curious fact, and nothing more. Your late discussion reminded me of my experiments. The second enclosed copy is Harlow's picture of Mrs. Siddons, from the *Souvenir* of 1830, produced, I think, at the same time.

You will perceive from these specimens that it is really true that light, after a certain time, proceeds to bleach the picture it has blackened, till the positive assumes the exact light and shadow of the negative. I have doubts, however, whether there be any value in this, except as a fact.

The manipulation of the process is so easy that it requires no explanation. Every one who is interested may at once convince himself by exposing an engraving to a bright sun over negatively excited iodized paper.

THOS. CRADDOCK.

Mr. Malone is quite in error in supposing that the sun *destroys* by long action; it merely *reverses;* or, at any rate, it reverses before it destroys.

[We are quite content with the admission that destruction is a result of long action.—ED. L. & M. P. J.]

NEW ACTION OF LIGHT.

Clarendon Square, Jan. 7, 1858.

SIR,—Some five years since I commenced some experiments on photographic printing. Determined that all the light which passed through the white portions of my negatives should be utterly absorbed, I covered the area of my copying frame with several folds of black woollen cloth. I was able to obtain some powerful copies in my first attempts. I repeated them on different days; but my subsequent attempts on each day were utter failures: not the slightest trace of a picture could be obtained. Struck by this remarkable effect, this problem arose: Would the photographic superficies of a newly-prepared print impart its photographic power to a sheet, also newly-prepared, but preserved in utter darkness? To ascertain this, I took a sun-developed print, and immediately, without washing, fixing, or any other preparation, laid it on an unexposed sheet, submitted the two in contact to a powerful screw pressure, and obtained, in a few moments, two prints, both positives, but of course with reversed sides. The fact was established; and the phenomenon was remarkable for this—that photographs could be obtained in *utter darkness!* I was much gratified with the fact; but it was of no practical value to me at that time, and I laid it by for use on some future occasion.

On glancing at the above record, we readily perceive that the result obtained differs very materially from the results of M. Nièpce's experiments: that gentleman was obtaining results from surfaces only mechanically sensitive—myself from surfaces chemically sensitive. M. Nièpce's greatest photographic power was obtained in his colourless portions, one instance excepted—that where he employed Prussian blue on white cotton. His black marble and charcoal failed to record any evidence of their action. My own whites were perfectly unsullied; but these were natural results, as they had not been submitted to *direct* solar action.

W. T. PRATT

LIVERPOOL PHOTOGRAPHIC SOCIETY.

ANOTHER special meeting of the members of this Society was held on Tuesday evening, the 9th instant, at the Royal Institution, for the purpose of finally confirming the resolution merging the existence of the Society in that of the Historic Society of Lancashire and Cheshire. S. COREY, Esq., presided. He stated the object of the meeting, and on putting the resolution in a formal manner, it was carried without opposition.

The CHAIRMAN, in the course of the evening, read a letter from the Rev. Dr. Hume, Hon. Secretary of the Historic Society, which stated that that Society would act without delay as soon as made acquainted with the result of the proposition before the Photographic Society, and that the two requisite meetings of the Historic Society would be able to be held within the month of March.

Before the members separated Mr. Forrest exhibited a shade to be used over the ground glass in the camera while focussing, to obviate the use of the usual cloth or handkerchief. He also exhibited a piece of the blue glass which was placed in Mr. Keith's operating room in July. There was no perceptible difference between the colour of the glass which had been exposed to the sun's rays and that which had been covered by the putty. He did not mean to say that this was a sufficiently long time to develop any change; but it was worth something as a record as far as it went.

The CHAIRMAN wished to hear Mr. Berry's experience, understanding that the roof of his operating room was formerly covered with blue glass, but that he had recently substituted white.

Mr. BERRY was not at all prepared with certain data on the subject. His impression through the winter had been that the common glass was slower than the blue glass; but within the last few days he had obtained pictures in less time than he had ever been able to do with the blue glass. While on this subject he wished to say that he understood the scope of the enquiry into the subject of white or tinted glass was not to be confined to one description of tinted glass, or white glass produced by one manufacturer, but that they were to obtain as many specimens from as many makers as possible.

Mr. FORREST said that it was so, and he should be glad to use his influence with manufacturers to obtain as many samples as possible.

Mr. GLOVER, as one of the committee, said that was his impression. He had written, he said, to Mr. Malone, on the 3rd instant, asking him if he could furnish the committee with the names of any manufacturers to whom he wished application to be made, but that no reply had yet been received.*

After some further conversation votes of thanks were, by acclamation, accorded to Mr. Corey for the interest he had taken on all occasions in the proceedings of the Society, and to Mr. Keith, the Hon. Secretary. This terminated the proceedings of the last meeting of the Society, and the members separated.

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* It will be seen that this subject is referred to in another place.—ED L. & M. P. J.

MANCHESTER PHOTOGRAPHIC SOCIETY.

THE monthly meeting of this Society was held on the 3rd instant, in the rooms of the Philosophical Society, George-street. Mr. ALFRED NIELD in the chair.

Mr. SIDEBOTHAM read the following paper, contributed by Mr. JAS. MUDD, on *"The Artistic Arrangement of Photographic Landscapes:"*—

Landscape photography! How pleasantly the words fall upon the ear of the enthusiastic photographer. What agreeable associations are connected with our excursions in the country. How often have we wandered along the rough sea-shore, or climbed the breezy hill-side, or descended into the shady valley, or toiled along the rocky bed of some mountain stream, forgetting, in the excitement of our pursuit, the burdens we carried, or the roughness of the path we trod. What delightful hours have we passed in wandering through the quiet ruins of some venerable abbey, impressing, with wondrous truth, upon the delicate tablets we carried, the marvellous beauty of Gothic window, of broken column, and ivy-wreathed arch. How pleasant our visits to moss-green old churches, and picturesque cottages, and stately castles, and a thousand pretty nooks, in the shady wood, by the river side, or in the hedge-rows, where the twining wild convolvulus, the bramble, and luxuriant fern have arrested us in our wanderings.

We may have had little mishaps; some disappointments. Our ingenuity may have been exercised to find a substitute for a broken ground-glass, or the ring of a lost tripod stand. The rustic population in bye places may possibly have misunderstood our vocation. Our mission not being clear to them, they have probably taken us for railway surveyors, electric telegraph people, sappers and miners, or, lower still, for ratcatchers, bird fanciers, or itinerant showmen. The writer of this paper has stood in the street of a small village in Yorkshire, at the side of his camera, surrounded by a numerous circle of wondering rustics, while offers of a pecuniary nature were freely made, by the small capitalists of the party, to secure a "look" at the peep-show. And, indeed, our conduct on some occasions may have very reasonably excited a suspicion, that we were even worse characters than those already referred to. As, for instance, when prowling about some farm-yard, we have seized upon a stray wheelbarrow, hayfork, or milk-can, to introduce into the foreground of our picture; the bewildered owner of the property, appearing suddenly at his threshold, and seeing his goods and chattels walked off before his eyes, might very rationally doubt the safety of his hen-roost, and entertain the thought of letting loose the dog upon us. We have often appeased the worthy man's fears, however, and have entertained him with a view, on the ground glass, of his house, and yard, and wheelbarrows, and wife—all wrong side up, the latter, to his amazement, walking comfortably about the premises on her head! After showing him the inside of the empty camera, without wheels, or clockwork of any description, (of which he was sure it was full,) and attempting a short description of the process, with the hardest possible words, he has walked away muddled and dead beaten; and, I have no doubt, while pondering over a soothing pipe, has felt that there are more things in heaven and earth than are dreamt of in *his* philosophy. After this, we could always do what we liked with the wheelbarrows.

And thus, good humouredly bearing our breakages, or losses, or misunderstandings with the agricultural mind, we have made our way; and, on arriving at our resting-place for the night, have spent pleasant evenings in laughing at our adventures, and in the very interesting labour of developing the pictures we have taken during the day. And over that same development, how delightfully anxious—how timidly hopeful—how busy and fluttering and interested we have been!

You will perceive I have been assuming that the process employed is a dry one, for I can scarcely imagine the same amount of pleasure in connection with the laborious duties of a tent. The constant occupation of time in preparing, exposing, and completing the plate on the spot, leaves but little leisure for enjoying the beauties of the scene around, while the demand upon the physical powers is something considerable. I have known photographers who remember, with no very pleasant sensations, their voluntary incarceration in the portable tent, or, what may not inappropriately be called (remembering its Indian temperature sometimes), the photographic "black hole."

Now, although our excursions, as I have said, are often very pleasant, we do not always return with really good pictures. I need not remind you of the many causes of failure. They are indeed too numerous to mention. It is often the case, however, that we get good photographs free from streak, or stain, fog, or blister—perfect specimens of some photographic process, but still they are not *pictures*. There are grave errors in the arrangement of the subject, or in the subject itself. The object of the present paper is to recommend attention to the selection of subjects, and to mention a few rules which are of use to the painter, and which may possibly be of some little benefit to photographers also.

In the early days of photography the most commonplace objects satisfied us. The ardent experimenter of that period looked with pride and wonder at the picture of a stack of grim chimneys, taken, perhaps, from his little laboratory window, or his surprising view of a dead brick wall and water tubs. He could count every brick; *that* was the marvel. But the novelty of this soon wore off, and something more was desired, namely, *beauty in the object itself*. So the photographer went to nature, and the hills and fields and streams became fitting subjects for his art.

Now, although nature may be said to be always beautiful, yet are there certain groupings of objects in relation to each other, certain agreeable outlines and combinations of forms, which, however difficult to explain in words, are seen at once, and recognised as picturesque, and it is to the selection of these points of interest the artist photographer would do well to attend. Great advances have been made in the artistic qualities of photographs, yet by far too many shew a lamentable deficiency in this respect. Our delightful pursuit will have taken up a new and improved position in relation to art when more attention is given to the subject. Artists admire portions of our pictures, as a foreground, a rock, or tree, but justly complain of a want of completeness as a whole.

Of course, the photographer has not the same command of arrangement as the painter. While the latter is but little dependent on the arrangements of external nature, and is left to himself to determine the order in which objects shall be associated, the former, after all, must take the view as it really stands before him. He has merely the power of selecting the best combination of objects from the most favourable points of view. It would be useless, therefore, where our power is so limited, to mention all the rules laid down for painters, but there are some which, I think, will enable us to determine which *is* the best view, and *why* it is. At any rate, we shall be none the worse for carrying this knowledge with us, and making use of it when circumstances allow us to do so. I will now refer to one or two rules for composition.

But, first, let me recommend you, on arriving at the locality you are about to photograph, to take a careful survey of the spot. The photographer who plants his camera at the first pleasing object he meets with, frequently finds a much finer view of the same thing afterwards. Take, then, a leisurely walk round before you decide, dropping a stick or a stone on the grass to mark the points of view you like best. In making your selection, perhaps the following rules may serve as a guide:—

Avoid getting the principal or leading features of a picture perpendicularly over, or horizontally level with each other. This is an important rule. J. D. Harding, in his work on Composition, says, "The flat surface upon which a picture is painted, and on which the painter has to invest the ideas of space, is not among the least of the difficulties with which he has to contend. The four lines at right angles with each other, which form the usual boundaries of a picture, present another obstacle to the painter, in consequence of the artificial limits thus assigned to his view; for it is as well known to all the world, as to himself, that natural views have no such artificial boundaries. These may appear at first self-evident and unimportant facts; but it will be seen that they lie at the root of many of the difficulties with which the painter has to contend in the composition of his subject. In the composition the painter makes his first effort to convey the idea of the separation of the various objects, and to overcome the difficulties I have pointed out as connected with the flat surface on which he paints. To effect this none of the leading features of the picture should be perpendicularly over, or horizontally level with each other; because if they be so placed, they either repeat actually, or by suggestion, the horizontal or perpendicular lines which artificially limit his picture, and which require to be concealed as much as possible from observation."

These remarks apply equally well to photography as to painting, for the latter has the same difficulties to contend with as the former, namely, the flat surface upon which his picture is taken, and its artificial boundaries. In the case of stereoscopic pictures, where the effect of space is produced in another way, the difficulties are not so great or the defects of composition so glaring; for, however confused they appear when the pictures are seen separately, the various objects become disentangled, and fall into their relative positions when placed in the stereoscope. Where, however, there is no assistance of this kind, as in the case of larger single pictures, you must rely upon the arrangement to prevent confusion of objects, and to give effect of space. And it has been found, from investigation of impressions made by art (not from a study or imitation of nature, for all pictures are equally true imitations of nature), that such result is gained, in some degree, by attention to the rule I have just mentioned. That, by a certain arrangement and separation of the parts of a picture, the effect of space is produced; while by placing objects immediately under or over each other, or on the same level, the contrary result of flatness is the consequence.

It sometimes happens that tho photographer finds it impossible to select his view free from disagreeable lines parallel to the bottom of the picture. In a case of this sort, a deal may be done to conceal them from the eye, in various ways. Here is a photograph of a very picturesque cottage, with the ground line and the line of the roof nearly parallel with the bottom of the picture. This defect has been considerably lessened, by rearing against the low walls of the cottage, some rough planks and logs of timber, which were lying about at the time the view was taken, and which serve admirably to attract the eye away from the horizontal lines, besides adding considerably to the interest of the picture. There is, frequently, some stray timber or branch of tree you may make very useful for this purpose, or for objects in the foreground. You may, also, if such means are not at hand, take the cap off your lens, and rush into the picture yourself, taking care, however, that you are not made a ghost of by the still unbroken line shewing through your body.

Endeavour to occupy every portion of your picture by some object of interest or pictorial value. It often happens in pictures, especially in photographs, that strips from the top to the bottom, or across, may be cut away without removing one feature of interest in it. The plainness of the skies, one of the greatest defects in a photographic landscape, must be as far as possible concealed, by breaking up the space with trees or other objects. Pity it is that we are driven to such a course, but we have not yet arrived at the knowledge which will enable us to combine the beauties of earth and sky. How beautiful would fine landscapes be with the clouds and skies of Le Gray! Let the foreground of your picture have much of your care and attention. The exquisite detail of rock and bramble, tall reedy grass and fern, or the gnarled roots or trunks of trees, which serve for excellent foregrounds, are also amongst the most interesting and beautiful objects in a photograph. By thus getting near objects at the base of the picture, you give distance to those beyond. We have all seen pictures very deficient in this respect. Here is one of the kind, with an unbroken solitude of field at the bottom; and above, a mass of white paper, which represents the sky. By removing both portions you have still all that is valuable left behind.

But, while making these remarks, I would just observe, that it is possible to crowd too much into a picture, so as to have, indeed, three or four pictures in one. In such cases the eye wanders from point to point, vainly endeavouring to decide which is the principal subject. There is no repose or order where so many objects are dividing the attention, and thrusting themselves forward as principals. Let there then be one leading object, around which the rest are grouped as accessories.

Let the principle feature of interest, whether it be a castle, or cottage, or group of rocks, whatever gives name to, or is to claim the chief attention in the picture, be placed in the most conspicuous position, which is near the centre of the picture. I do not mean the point where lines drawn from the opposite corners would intersect each other, but any point equally distant from the sides, though unequally from top to bottom.

But in thus placing it, take care that the objects on either side are varied, and do not resemble each other in size, or form, or weight of masses. For example: A building in the centre of your picture, and a tree on either side, equal in size and appearance, would, you can easily imagine, produce a picture very faulty indeed in arrangement. When the subject is a single object, as a tree, it should be placed near the side.

With respect to the subject of light and shade,—I may say, I think with safety,—avoid broad unbroken masses of shade. Every photographer knows that the shady side of nature is her least attractive side. Amongst our collection of failures, I fancy we can find a more formidable array of ghostly forms, and half-developed images, arising out of the gloom of shady places, than Mrs. Crowe ever dreamed of in that very sepulchral work of hers—the "Night Side of Nature." But while avoiding much shade, we must not fall into the other extreme. A picture with the light full in front is usually flat, and wanting in the agreeable variety and relief which shadows thrown from projecting objects give when the light comes in at the side of the picture. A side light is therefore preferable.

Never let the horizon of a picture be half the height of the drawing; but above, or below, as the subject requires.

In taking a view of an avenue of trees, a street scene, or long perspective of arches, do not let the distant opening be exactly in the centre of the picture, but more at one side, and nearer the base of your picture than the top.

A word or two on the introduction of figures. How rarely do we find in photographic landscapes a nice arrangement of suitable figures. Why are they always looking full at you? Why do they always seem to have so little to do with the picture—to be *in* it, but not *of* it—standing uncomfortably erect, with their faces to the spectator? No doubt it arises from the curious fact that people invariably look straight at the camera when invited to stand in a picture, and photographers usually, either for want of time or taste, allow them to arrange themselves in that manner. Let us take a lesson from the painter, who generally finds his figures something to do in the scene he paints. Remembering the rule I have mentioned, be careful not to place them immediately under any leading object of the picture. Let the "right man" be in the "right place," and all figures be appropriate to the scene. An old man, or child in a churchyard—a fisherman on the banks of a stream—a group of rustic children in a village—a farm labourer among his stacks of hay or corn—these are all suitable to the character of the pictures, and in harmony with them. To introduce into such scenes, a fine dapper gentleman in glossy hat and kid gloves, or a lady, whose small circle of parasol above sets off the mighty circumference of crinoline beneath, would be absurdly out of place. And yet we see such mistakes every day. It may be difficult to meet with suitable figures, but that is no reason why unsuitable ones should be introduced: the pictures would be better without figures at all.

Besides the rules I have mentioned in this paper, there are some others laid down for painters, but they are so very remotely applicable to photography, that I have not thought it necessary to refer to them, but have merely recommended those I thought most available. If what has been said should induce you to seek further on the subject, or to pay increased attention to the arrangement of your pictures, the object of this paper, and of my wishes, will have been gained.

There are two things that photography must do for us; it must increase our love for nature, and our admiration for nature's imitators, the painters.

We cannot go forth into picturesque districts in search of subjects for our pictures without improving our taste, and increasing our love for nature. We cannot possess so many charming copies of those beauties, as our portfolios contain, without becoming more intimately familiar with all the beautiful details and exquisite finish of nature's handiwork.

And while we admire these beauties, we are, I think, capable of appreciating better the work of the landscape painter. We see how earnestly and patiently he has studied, and with what truth he has rendered on his canvas the very forms we have become so familiar with: the ripple on the stream, the markings in rock and stone, and trees, and crumbling wall, and (what is beyond our art), the thousand hues and tints of earth and sky.

There is one thing I should like to say before I conclude, I hope, as there will be no Art Treasures Exhibition to claim our time this season, we shall attempt something in landscapes of an important size. I should strongly recommend you to emancipate yourselves from the custom of only taking pictures for the stereoscope. In my humble opinion a good nine by seven landscape is a more valuable work than twenty stereoscopic ones. The latter have engaged our attention almost exclusively for a season or two; and I fear there is a danger of our becoming a society of very small operators indeed. I do think, gentlemen, judging from my own sensations, that you would derive more gratification in the production of larger pictures.

I have referred to the Art Treasures Exhibition. I refer to it again, in conclusion, hoping that we all profited by our delightful acquaintance with the great works of the painters exhibited there; and I trust by studying the rules which have been their guide, and by understanding the principles of art, we shall become the greater admirers, and the more successful practisers of landscape photography.

The above paper was illustrated with a number of diagrams, which made the subject very interesting.

The Secretary, Mr. COTTAM, then read a communication he had received from Mr. Noton, relative to an experimental revolver he had made, furnished with different shaped stops, and applied in front of a plano-convex lens for views—diameter two and a quarter inches, focus about eight and a half. The revolver will carry a stop of any shape, (two inches from the lens,) but so far only four shapes have been used, namely, a rectangular one, 1·2 inches long by ·007 inches wide; a triangular one, 1·2 inches long, ·2 inches at the base and ·003 inches at the point; also a round one, ·5 inches in diameter, eccentric ·38 inches; and a square one, ·5 inches by ·5 concentric.

The object has been to ascertain whether or not the shape of the stop had any effect upon the picture, (not the exterior of the field). It is rather difficult to explain the various appearances of disturbance, distortion, &c., produced by the various shapes, but their character certainly alters, as one or the other are used.

One experiment, with the rectangular stop, may be mentioned for illustration. The camera was set up on its legs in a room, and pointed to look through the window into the street, and focussed for an intermediate wall there, a five-eighths round stop being in front of the lens; this stop was then removed, and the rectangular one substituted for it. Upon revolving this, all the objects out of focus were at once set in distorted motion—the disturbance was most in the bars of the window, those being the nearest; the wall in focus was apparently unaffected, and a slight motion in objects at a considerable distance could be perceived. When the slit was set at an angle of about 45°, all the window bars were out of focus, as they were with the five-eighths round stop, (the light being of course less, as the area of the rectangle was only about one-fourth of the circle,) when the slit was vertical or horizontal, the vertical or horizontal bars were correspondingly in focus, as were the lines in the objects at the greatest distance.

The conclusions drawn from the experiments made, are, that a stop should be shaped to suit special cases; a scaffold pole, or a tree, out of focus, which cannot be got rid of, may be very much sharpened by a vertical stop of a proper shape.

The next Meeting of the Society will be held on the 3rd March, when the Rev. W. J. Read, M.A., F.R.A.S., will read a paper on "*The Optics of Photography.*"

LONDON PHOTOGRAPHIC SOCIETY.

The Annual General Meeting of this Society was held on Tuesday, the 2nd inst., Lord Chief Baron Pollock in the chair.

The minutes of the last meeting having been read and confirmed, the Chairman, after a few congratulatory remarks on the increase of the Society and the prosperity of the Society's Journal, proceeded with the delivery of the annual address :—

Gentlemen,—I have to call your attention to a very few matters; but there are some which I think I ought to mention on the present occasion. Among the first is a communication that I have received from the Royal Society of Arts, respecting the co-operation of this body in an object which I think every honest and well-directed mind would concur in for the protection of what might be called intellectual or artistic property. A committee has been formed, composed of members of the Royal Society of Arts, and they have selected some members of the Photographic Society, and, I believe, of other societies, for the purpose of endeavouring to protect by law, (where direct protection is not afforded,) those results of scientific labour, or the mere efforts of genius in producing that which instructs and delights mankind.

In my opinion the Photographic Society is, at least as much,—I had very nearly said more, and I am not sure that I should not have been right if I had said so,—is more interested than, perhaps, any other class of persons. It would be altogether out of place if I were to express any personal opinion as to the state of the law; it is quite sufficient to say that the most eminent persons that belong to that profession entertain considerable doubts as to what is the protection given to a photographer.

I will give a case in illustration :—

Some gentlemen, votaries of photography, arrange to go to some interesting spot, many hundred miles from this country, at great expense. They take with them an apparatus, calculating to bring back memorials of all the treasures of art, of antiquity, and of whatever is curious that the spot they have selected can afford. They go there—they accomplish their object—they return, and communicate with some person whose business it is to make such things public. They receive scarcely more than a remuneration,—perhaps not so much as the expense they have incurred in providing this instruction and entertainment for the public,—and, in a short time, the person who has advanced his capital for their remuneration discovers that an individual has purchased a single copy, has instantly derived from it a negative, and proposes to publish at an under price that which is an imitation of what he had purchased; and it is said,—and I am by no means prepared either here, gentlemen, or anywhere else, to say otherwise, but it is said,—that that can be done without any let or hindrance from the law. I think that is a great grievance, and that such a proceeding is very dishonest. Now, it may be said that the person who did this had a right to do it. He may say, "I violated no law;" "I broke no commandment of either God or man." He may be right, perhaps, in not having broken any commandment of man; but if he recollected the precept, "Do unto others as you would be done by," I do not think he can say he did not break any commandment of his Maker; and, gentlemen, I cannot help repeating what I have frequently said, both at the bar and on the bench, that if a man confines himself simply to the law of the land, and merely does what the law compels him to do, and abstains only from that which the law forbids and punishes, he may be the most wicked, dishonest, and mischievous person in the kingdom. There are morals and manners to be observed which no gentleman can omit to notice, to respect] and reverence without forfeiting the character which belongs to him. Gentlemen, I have to request your cordial co-operation, and I am asked to make this request by the Society of Arts. They have communicated with us as they have with many other societies, who, like us, are connected with the instruction, and the improvement, and the delight of mankind by the images that we present of whatever is great and glorious, whatever is resplendent in art, and whatever is dignified and exalted in nature; and they request that we will co-operate with them, and render every assistance in procuring the passing of a law, (if a law be necessary,) to make the same provisions and protection in respect to all works of art, or copies of art or nature, which undoubtedly exist with respect to engravings.

Gentlemen, I have made this communication, that you may then, in your several departments, endeavour to give facility to the course that the Society of Arts, with the assistanee of the committee, have adopted, and that you will labour, each of you, in the Societies in which you may be, to advance the object which unquestionably has a tendency to make photography successful, and to prevent the labours of one man being pilfered by another.

Gentlemen, there is another matter which, I think, I should mention; I allude to the very remarkable discovery of M. Niépce de St. Victor. I mention it, I must say, with some personal satisfaction. If there be any of you who have attended these annual meetings for the last two years, you may have heard me say that I expected that the study of photography, and the pushing the enquiries that photographers were making, would result in some new discoveries with reference to light and to the intimate knowledge of the construction of bodies, which would tend considerably to increase our scientific knowledge of those objects which we are desirous to study and to learn. Probably many of you have seen the particulars of this discovery, and, therefore, it would be wrong in me to occupy any great length of time in dwelling upon it; but there may be some who have not heard anything about it. I think it may be worth while just to express in a few words what I have to say. It has been discovered that if an engraving, which has been for some time kept in darkness, be taken into the light, and exposed to the rays of the sun for a time, for some purposes a quarter of an hour, for other purposes two or three hours; then apply it to some sensitive paper, put it in darkness, shut it up for some four-and-twenty hours, and, when you open the receptacle where it has been concealed from light for that time, you will find on the sensitive paper a copy of the picture. The engraving will be repeated upon the sensitive paper that has been thus put in communication (but all in darkness) with the engraving which has been exposed to the sun. It is stated that the paper exposed to the sun gets saturated with the suns rays—so saturated that you can avail yourselves of them, and they go on operating after you put them in a place of darkness; and "if, after having exposed an engraving to the light for an hour, it is placed in contact with a piece of pasteboard which has been kept in a dark place for some time previously, and at the expiration of not less than twenty-four hours, the paste-board be brought into contact with the prepared paper, and allowed to remain there for another twenty-four hours, the result will be the reproduction of the engraving." Now that is very astonishing, for here it appears not only that you can accumulate the rays of the sun, so that they shall produce, in the absence of the sun, an effect as if you had concentrated them, and spread them over, so that they were capable, on being put in darkness, of gradually evolving themselves, and performing an office, of doing something that nobody ever dreamt of before; but you have this—the pasteboard takes from the engraving the faculty that belonged to the engraving, with all its variations, and, upon being applied to the sensitive paper, you seem, as it were, to have taken, one knows not what to call it—to have taken an invisible copy of the engraving on the pasteboard, and then transferred it to the sensitive paper from the pasteboard that has nothing upon it; you get from that not so entirely perfect a representation of the engraving, but fainter, though still very perfect. Hardly anything can be more extraordinary than that, but it goes still further; if you take a tube that is not transparent, made of metal or porcelain, anything that is perfectly opaque, line it with white, and expose it to the sun, that the sun may shine into it, and then turn it down upon a piece of sensitive paper, light somehow or other appears to issue from the tube, and blacken the sensitive paper, and if there be an engraving between, you get the image of the engraving upon the sensitive paper, and, what is more, the tube continues to have that properly, if you hermetically seal it and shut it up: it seems to have that property for an indefinite period. And, further, if you take a piece of paper—a new term is adopted—I think *insolation* is meant to represent the exposure of an article to the sun; if you take an engraving, expose it to the sun, fold it up, put it into a tube such as I have described, hermetically seal it up, and take it out at the end of a fortnight, it will do just as well as it would have done the moment you took it from the rays of the sun. Now this is a mode not only of condensing, but of preserving the rays of the sun, and is one of the most remarkable facts that has ever been discovered in the course of what may be called practical science, and it is entirely the results of the efforts of photography to extend its views. I think it would be premature to offer any theory, or to say anything about it, but it certainly appears a new path of discovery, of that character that I had anticipated the first time that I had the honour of addressing this assembly, and, it appears to me, in acting upon different substances, to have a tendency to prove many matters connected with their intimate structure and their intimate properties, not varying very much in principle, though no doubt entirely different in detail from that which is exercised by polarized light, and perhaps something of that sort was to be expected from the improvements in the study of light, such as photographers have lately persevered in.

Gentlemen, in the course of the year, there is another matter very interesting, but which, I think, does not admit of the same distinct and clear statement; I allude to the discovery made by Mr. Grove.

Gentlemen, you will hear an allusion in the Report of the Council, to the death of Mr. Archer. The Report contains what the Society has done, and what may be expected from the liberality of the members; and there can be no doubt that photography has lost a person who has conferred considerable benefits upon it, and made great progress in the art, and though it will not, perhaps, be justifiable in saying of him quite as much as Newton said of Coates, "If Coates had lived, we should have known something," but at least, I may say that the Society has lost a very active, useful, and persevering member of photography.

Gentlemen, I am not aware that I have anything else to present to your particular notice, and I can only say, that I trust the progress that we have made will merely be an incentive to go on increasing as we have done, and I think if our room is not so large as that in which we used to assemble, at least it is our own, and I trust while I have the honour to preside on these occasions, that I shall always have the opportunity of presenting to your attention, nothing but what is favourable and prosperous.

The SECRETARY then read the report, which was adopted *nemine contradicente;* and the report of the auditors was taken to be read, and ordered to lie on the table for a week for inspection.

Mr. LE NEVE FOSTER asked that the council would state, in a few words, the money which had been spent upon the house, the terms upon which it was held, and the accommodation it was likely to afford.

Mr. ROSLYN: The cost of making the alterations in the rooms is £411 9s. 5d. We have expended for furniture £149 9s. 6d.; for miscellaneous articles £32 6s. 6d.; for gas-fittings £29 5s. 9d.; and a few small sums besides, the total cost being somewhere about £700.

After a short conversation respecting the tenure of the premises,

Mr. WILKS said—Perhaps your lordship will allow me to make one remark as to what has fallen from yourself. I am not aware whether, from the formation of this Society to the present hour, we have ever elected an honorary member; if not, I think the time has come when we ought to elect Mons. Niépce de St. Victor; and I beg to move that Mons. Niépce de St. Victor be now elected an honorary member of this Society, and that that election may be conveyed to him by the Secretary in such complimentary terms as may be desirable.

Sir W. NEWTON seconded the motion.

Mr. HENRY POLLOCK:—I may be allowed to state that at present we have honorary members. I remember moving that the President of the Photographic Society of France, and the Secretary of that Society, be elected members, and that was carried.

The CHAIRMAN: I must say I entirely concur in the feeling that Mons. Niépce de St. Victor should receive from the Society every acknowledgment that we can possibly make to him, and by electing him, as it were, on the spot—that is, immediately, without notice, without any question—would confer upon him in the most ample way the honour that we propose to pay to him.

Mons. Niépce de St. Victor was then elected an honorary member by acclamation, without the ordinary routine of the ballot.

The CHAIRMAN then put to the meeting the question whether the election of officers or the reading of a paper should be proceeded with, when it was resolved to proceed with the former.

During the proceedings of the election, Sir W. NEWTON expressed his regret at being compelled to retire from the council, and that his engagements would prevent him from attending their meetings in future so often as he could wish.

The scrutineers having announced that the President and Treasurer had been re-elected, and that Mr. Fenton had been elected in the place of Sir W. Newton. The CHAIRMAN briefly returned thanks for the honour again conferred on him, and the meeting adjourned.

LIVERPOOL SOCIETY OF FINE ARTS.—The late disputes in the Liverpool Academy have resulted in the establishment of the Liverpool Society of Fine Arts. A meeting to inaugurate the new Society took place at the Royal Institution on Monday, the 8th inst., under the presidency of Theodore Rathbone, Esq. The meeting was very fully attended, and the proceedings were harmonious throughout. Without entering into the matters of dispute with the Liverpool Academy we can wish the new institute every sucess. While there are some points in common between the new and the old Societies, (such as having annual exhibitions, and the granting of prizes to artists), the Liverpool Society of Fine Arts will have the advantage in an educational point of view—as assistance is to be rendered to students in art in pursuing their studies. There are to be several classes of annual subscribers, who will have in return certain privileges according to the class of subscription. We note with satisfaction that professors are to be attached to the institution, who are to deliver lectures on different branches of the fine arts during the exhibition season. There is one deficiency in the scheme, as proposed at the meeting, to which the proprietor of this *Journal*, in the interests of the new and beautiful branch of art to which our labours are directed, thought it right to direct the attention of the promoters, namely, that while painting in oil and water colours, sculpture, and architecture, are to find a home in the new institution, photography, as a branch of the fine arts, has been ignored. The proprietor of this *Journal* suggested that the photographic art should be represented both on the executive and in the exhibitions of the Society. The suggestion was well received by the chairman and the meeting, and Mr. W. G. Herdman explained that the subject had already occupied attention, and though no result had yet been arrived at, the suggestion would receive serious consideration. We trust this will not be lost sight of by the council, as the photographic art will, year by year, as proficiency in manipulation and the knowledge of chemical and optical science advances, force itself more and more upon the attention of all academic authorities. We trust the example set by the managers of the Art Treasures Exhibition will not be lost upon the promoters of the Liverpool Society of Fine Arts. We may add that a large array of the leading artists of the country have given in their adhesion to the Society, and promise to send pictures; and from present appearances we may augur favourably of the future of this new art institution. We believe the *locale* fixed upon for the exhibitions is the Queen's Hall, Bold-street, which is to undergo the necessary changes to adapt it to its new circumstances.

PHOTOGRAPHIC PORTRAITS OF THE PRINCESS FREDERICK WILLIAM OF PRUSSIA. — On the 25th ult., Mr. Williams, photographer, of Regent Street, attended by command at Buckingham Palace, and took a full-length photographic portrait of the Princess Royal in her bridal dress before she started for the chapel. Mr. Williams also took, in one group, the likenesses of her Majesty, the Prince Consort, and the bride, on a large-sized plate, and also an exquisite stereoscopic likeness of the young bride. It was the time occupied by these proceedings which occasioned the Royal procession to be a few minutes behind time at the chapel—a rare event in any ceremonial in which her Majesty is concerned.

ON THE MANIPULATION OF POSITIVES,

BY CHARLES A. SEELY, A.M.*

The process of producing an ambrotype (or positive picture), consists of the following operations:—1st. Cleaning the glass plate; 2nd. Coating with collodion; 3rd. Immersion in silver bath; 4th. Exposure to light in the camera; 5th. Fixing or clearing up; 7th. Varnishing—colouring; 8th. Mounting.

Cleaning the Plate.—The glass plate must be thoroughly cleaned on every part. For doing so easily and well, procure the following articles: bottle of alcohol; bottle of mixture of alcohol and rotten stone, of about the consistency of cream; a plate vice; a few pieces of Canton flannel, about two inches square; the two bottles may contain about eight ounces, and should be furnished with a cork, pierced by a quill or a small glass tube, for convenience of pouring or spirting out a few drops at a time.

Fasten the plate in the vice. and pour on the centre of it a few drops of the rotten stone mixture; then with a piece of flannel gently scour the surface, moving always in circles; turn the plate over, and treat the other side in the same way; turn the plate again—rub off the rotten stone with a dry and clean piece of flannel. Pour on a few drops of alcohol—rub dry with a fresh piece of flannel: treat the lower surface in the same way. Finally, after detaching the plate from the vice, carefully wipe the edges from any adhering rotten stone, and—the plate should be clean. The best test of its being clean is to breathe upon it. If the breath is deposited in a uniform film, you need have no doubt—the work is well done: two minutes is time enough to spend on a medium plate which has never been used.

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* The Ambrotype, by Charles A. Seely, A.M., Editor of the *American Journal of Photography*.

Any convenient number of plates may be cleaned at one sitting, and preserved in a clean box with a closely fitting cover, to keep out the dust.

If the glasses have been used, and have dried collodion or varnish on them, the cleaning is somewhat more troublesome. A good soaking of such plates in a bath of dilute acid will often be found practicable; indeed, if the artist has good water privileges, he may find the acid-soaking a useful plan for all his glass; especially if he makes his own gun cotton, let him turn his waste acids to this purpose.

The bath may be composed of—

Sulphuric acid.................... ...	1 part.
Water	10 „

Keep any number of plates in soak, and when wanted, wash well with water, and finally finish on the plate vice with alcohol and flannel.

Coating with Collodion.—Before pouring on the collodion it is necessary to remove from the glass every particle of dust, which is sure to settle on it, although the greatest care has been used. Those particles are removed by wiping the plate on every part with a clean silk handkerchief, or by gently dusting it with a broad flat brush called a blender.

When all is ready, take the glass by the lower left hand corner, between the thumb and fore finger of the left hand. From your collodion bottle, held in your right hand, pour sufficient collodion on the centre of the plate to nearly cover the surface; immediately depress the corner of the plate by which you hold it till the collodion almost touches your thumb; then successively depress the upper left and right hand corners, finally pouring off the excess into the bottle from the lower right hand corner. This operation must be done quick, but yet with no uncertain or irregular motions. While the excess of collodion is still dripping into the bottle, the plate, in a vertical position with the corner resting upon the bottle as a fulcrum, should be moved to and fro, in order that the little ridges formed by the flowing may be united, and form an even film. In a moment the film becomes so "set" that it does not move, and it is ready for the next operation.

The collodion should be poured from a bottle expressly made for the purpose, of a somewhat conical shape, and fitted with a fine and closely fitting cork: a glass stopper is entirely unsuited to collodion; a convenient size is about 4 ounces.

If the operator is favoured with much patronage, it is advisable to have at least half a dozen collodion bottles, from which he can pour alternately, thereby always securing collodion which is settled.

The operator in pouring must be extremely careful that no dried collodion, which accumulates around the neck of the bottle, get on the plate. The particles invariably produce blemishes on the picture. To avoid them make a rule to wipe the mouth of the bottle before pouring.

Immersion in Silver Bath.—The exact point of time proper to immerse the collodionized plate in the silver bath is of much consequence, as a variation from it will materially affect the result. If the plate is immersed before the film is sufficiently set, it will be disturbed by the silver solution, and if the film is too dry it will be acted upon unequally. The first cause will produce blemishes on the picture, in shape somewhat like fern leaves, on the part of the plate where the film was softest; the second will produce dark clouds where the film was deepest, in appearance as if the model was not uniformly illuminated.

The best test of the time to immerse the plate is to apply the finger to the edge of the film. When the dry finger easily makes an impression, and the film at the same time does not adhere to it, the plate is ready.

Place the plate on the dipper, and with a steady, unhesitating motion plunge the plate into the bath—not too suddenly, for the film might be disturbed—nor too slow, for if the plate rests an instant, a line across the plate is invariably produced.

The plate should remain in the bath from two to five minutes, the time varying with the temperature: the longer time being required for the colder temperature. If the plate be taken out too soon the surface has an oily appearance, owing to the ether being still in the film, and repelling the water. When the plate has been sufficiently long in the bath, the surface presents a uniform yellowish or creamy appearance, semi-opaque. If the plate remains in the bath a few minutes after the bath has lost its oiliness, no harm need be anticipated.

The silvering above described is done in the dark room. Whatever light is admitted should come through a red or yellow screen. A sheet of mica, in the form of a cylinder, around the flame of a common hand lamp, answers well. On one side the mica should be cut away, so that the full intensity of the flame may be used when it is required. A very serviceable screen for the daylight, when it is used, is made by staining a glass plate by the ordinary black varnish. A uniform orange tint is easily obtained, which is almost impenetrable to the chemical rays, while at the same time an abundance of light gets through for seeing purposes.

Just before finally removing the plate from the bath, move it gently up and down a few times (a churning motion), in order to free it from all traces of ether or particles which may have been deposited on it from the solution. Let the plate drain a moment over the bath, remove it from the dipper, rest the lower end for an instant on a piece of cloth or filtering paper, in order to remove the drops of solution, lay the plate in the camera shield, and it is then ready for exposure.

Exposure in the Camera.—The sitter should be arranged while the plate is in the bath. The sooner the plate is used, after removal from the bath, the better. It must be used while still wet. If the film is allowed to become dry it loses much of its sensitiveness, and the image developes unevenly.

The time of exposure can be determined only by trial. The collodion film will generally give an impression in about one-third of the time necessary for a Daguerreotype.

In carrying the shield to and from the camera great care should be taken to keep it constantly in an upright position. If its position is reversed, the liquid which has accumulated at the bottom will flow back, and produce stains which cannot be removed.

The Developing.—This is done in the dark room. The plate being held in the left hand, as in pouring collodion, the developer is spread by a quick motion, so as to cover the plate before any action is visible. The developer should be contained in an eight ounce wide mouthed bottle. In pouring, the neck of the bottle should be as near the plate as possible—the fluid being turned on at the lower edge of the plate. As much solution should be kept on the plate as it will hold. During the progress of the development keep the liquid in motion by gently vibrating the plate.

The development will require about thirty seconds. As soon as the image appears distinctly in all its parts, throw off the liquid and thoroughly wash the plate with water.

At this point the image appears as a negative on a yellow ground, and is ready for fixing.

Fixing.—This does not require to be done in the dark room, provided the plate is thoroughly washed after development. Unless the dark room is sufficiently large, fix the image in the light.

The fixing solution, contained in a wide-mouthed bottle, is poured on the plate, covering every part. As soon as the yellowish coating has entirely disappeared, wash the plate thoroughly in clean water. If the smallest atom of cyanide is left, it shews itself hereafter.

Dry the plate well in the sun, near the stove, or over a spirit lamp.

The picture is now visible when laid upon a dark surface.

Colouring and Varnishing.—If only a little colouring is to be done, apply the colours precisely as in colouring a Daguerreotype, except, it must be remarked, a deeper colour is desirable. Such colouring improves an ambrotype no more than a Daguerrotype, and is often, therefore, judiciously omitted. If you have artistic skill, you may use water or oil colours. The collodion film is an excellent surface on which to apply paint, and any one who can make a good picture on canvas can convert an ambrotype into a fine oil or water colour painting.

The white varnish is flowed upon the plate (picture side) precisely like collodion, and should be dry and hard in a few minutes. Many operators apply the colours upon the varnish. If the colour is laid while the varnish is still "tacky," the colour will be more intense and brilliant.

If heat be applied to dry the varnish, it becomes harder.

The black varnish is usually spread on the glass side of the plate.

Imperfections in Positives: their Causes and Remedies.—Imperfect ambrotypes may result from faults of manipulation, chemicals, or apparatus.

The following are indispensable: careful, cleanly, and dexterous manipulations, pure photographic chemicals, serviceable apparatus, *and, presiding over and superintending all, good taste, and common sense.*

In manipulating, cleanliness is of the utmost importance. Hands, bottles, and camera shield, require special attention. Any dirt on these is sure to get on the clothes, into the chemicals, on the picture.

The bath developer and fixing solutions are things that must always be kept apart from each other. Pure chemicals *must* be had; and let the apparatus be convenient and kept in order.

All events in nature are reasonable—have causes which may be discovered and controlled. For example, you have an imperfect picture—reason about it. If there appears specks or dots, black or white, (generally shaped like comets,) some particles of foreign matter has produced them. Is the collodion settled? Is the bath filtered? Did you allow dust to settle on the plate? Answer these questions, and you have the cause and know the remedy. —There are stains starting from the corners of the plate. Is it a dirty camera shield, or comes it from unwashed fingers?—The developer acts unequally. It is too strong—has not alcohol enough, or you did not keep it moving.—There are fine lines, parallel, white, well defined in the direction of dipping the plate. Look to the bath. It is over-iodized, or it has a scum on its surface. Add fresh silver, or skim the bath.—The picture is covered with a film or fog. Look to the bath, it needs a drop of acid.—The picture is disturbed by the fixing. The bath needs strengthening.

All the above vexations may occasionally happen to a good operator who works with suitable materials. Yet the remedies are easy and prompt.

SMARTT'S NEW PHOTOGRAPHIC TENT.—This portable tent, though simple in construction, is very firm, and affords ample room for the operator to manipulate with perfect ease and convenience; it is rectangular in form, is six feet high in the clear, and three feet square, affording table space equal to thirty-six inches by eighteen inches, The chief feature in its construction is the peculiarity of its frame-work which constitutes, when erected, a system of triangles, so disposed as to strengthen and support each other: it thus combines the two important qualities of lightness and rigidity. The table is so made that when not in use it will fold up; attached to it is a "sink," made of waterproof material, which obviates the necessity of carrying a dish for developing; a tube is also connected to the sink, by which all waste liquid is conveyed outside the tent. A water bottle of a very convenient and portable form has also been contrived, for use with the tent; in fact, all has been done that experience and care could suggest. Its entire weight is 17 lbs., and it is easily erected or taken down by one person. By the use of this tent we believe the operator will insure the means of working the wet collodion process in the open air with ease, comfort, and convenience.

CORRESPONDENCE.

PORTABLE PHOTOGRAPHIC TENT.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—The following description of my portable photographic tent may be of service to others who may wish to make one at a trifling outlay, wherein may be worked the wet collodion process with as much ease as at home. A tripod stand will be required; the top about ten inches each way, and the legs five feet three inches long, with the spring outside instead of in, "a good plan for making a stand easily, and which I am surprised is not in more general use." This stand is covered with three thicknesses of yellow calico, sixteen yards in all. Each breadth is divided from corner to corner, and then sewn up the centre, then all are joined together. These are covered by a black envelope, requiring five yards, made up the same way. The bottom of the tent is protected by having about eight inches of painted canvas sewn round it; this will fall on the ground and keeps out the light, it also preserves the tent from injury on damp ground, &c. The interior of the tent is now a darkened triangle of twelve feet, and will be found quite large enough for ordinary purposes. To admit light to work by, an opening, eight inches square, is made in the black envelope, and this will be found quite sufficient. The covering of the tent is fastened to the stand by means of tapes, the opening being near one of the legs and three feet from the ground, made by one of the seams being left unsewn for that distance, and protected by a flap of black calico one foot wide. The developing box has a bath at each end, one for nitrate of silver, the other for water to wash the plates in, and a developing tray in the middle; underneath the tray are divisions for bottles containing collodion, developer, &c.; on the sides are grooves for plates. A deep cover fits over the box, which serves for a seat when the operator is inside. A strap from each end forms a handle to carry it by. The tent will do for the camera stand, but frequently an additional stand will be required.

Yours truly, THOS. GULLIVER.

Fisher Street, Swansea.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I write to ask your valuable assistance, on the part of the committee appointed at the late meeting of the Liverpool Photographic Society, to investigate the change which glass undergoes when exposed to the action of light and air.

I feel assured that I reflect the sentiments of all engaged in this research, when I say we undertake it, not with any desire to prove or negative the statements of individvals, but purely to establish a scientific fact, and to set at rest one of the vexed questions which has so impeded the whole of our machinery as a society.

If not asking too much, may we beg of you to furnish us with specimens of either coloured or colourless glass, accompanied by the history of their composition. We shall also be glad of your recommendation to any manufacturers sufficiently interested in the subject to submit their products to our test. We shall also be most happy to receive any suggestion which your long experience in the art may prompt.—I am, dear Sir, yours faithfully,

JOHN GLOVER.

26, *Hanover-street, Liverpool,*
Feb. 3, 1858.

[We are sure that our readers will take this letter as if addressed to themselves, and aid with us in placing in the hands of the committee any specimens or information likely to serve in this interesting and useful investigation.—Ed. L. & M. P. J.]

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In reference to the phenomenon alluded to by "Amicus," in your last number of the *Journal*, I fancy that the results of a trial I made some months ago may throw some light on it. Sir D. Brewster says, in page 175 of his work on the stereoscope, that when objects *less* than the *lens* are taken, that, beyond a certain point, other objects behind, and less than the front ones, will be seen through the centre of them like ghosts. Not being satisfied with this assertion, even from so learned a person, I tried, and found the fact not in accordance with his statement. My experiment was this:—I placed a circular piece of black card, half an inch diameter, as my first object, on a piece of wire, and at the proper distance behind this, another circular piece of white card, three-tenths of an inch, and on focussing the black object there was seen a *white ring round* the black image, and not *within* it, as Sir. D. Brewster said would be the case. This, it appears to me, may at least tend to account for the phenomenon in question, and I shall be glad to know if it should be thought to do so.

The variance between the statement of Sir D. Brewster and the fact as observed by myself, remains a subject of enquiry for some one better acquainted with optics than I am, for I admit I have only common sense to guide me. Still, I must say, I have hitherto supposed that the pictures resulting from the lens were formed by converging rays, and not by diverging light; for were it so, surely there would be but a thorough conglomerate of pictures on the glass, and not, as I know to be the case, a properly defined position of objects before the camera. And I cannot help thinking that the ring of white round the black object was formed by the refraction of the rays from the small white object, as they passed by the edge of the front one, and that the diagonal rays had nothing to do with it; at all events Sir D. Brewster's assertion and the facts do not agree.—I am, Sir, your obedient servant,

Rochester, Feb. 8*th*, 1858. T. L. MERRITT.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Allow me to call the attention of photographers, through the medium of your widely circulated columns, to the annular eclipse of the sun, which will take place on the 15th of March next. The occurrence of an annular or total eclipse is always an occasion of deep interest to astronomers, on account of several remarkable phenomena which have been observed in connection with them. Perhaps the most singular of these is that known as "Baily's beads," from having been first minutely described by the astronomer of that name.

Now it is obvious that if a series of photographic representations of this phenomenon could be obtained, they would be of inestimable value; and I wish to induce photographers, especially those who have the good fortune to reside in places where the eclipse will be annular or nearly so, to endeavour to obtain impressions on their collodionized plates of the various phases of the eclipse, the only apparatus required being a view lens (the longer focus the better) and camera, with some arrangement for opening and closing the lens instantaneously. The aperture of the diaphragm must of course be adjusted so that the instantaneous exposure may produce an image of the proper intensity. The image may either be enlarged or examined with the microscope. The collodion employed must, of course, be perfectly structureless. The principal towns near the line of the central eclipse are Sherborne, Devizes, Swindon, Oxford, Buckingham, and Peterborough. At London it will be partial only.

Whitehaven, Feb. 10, 1858. R. W. FORSTER.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—The report of my remarks at the last meeting of the Liverpool Photographic Society conveys, I think, an impression different from, if not opposed to, the one I intended. I was made "to express surprise that you had not entered into the discussion in a more fair and liberal spirit." I can bear the imputation of vulgarity (!) in having given way to an emotion without adequate cause, though I am afraid that, like Sir Charles Coldstream, I am past all surprises. I can even allow it to be supposed that I could make so ill-natured, discourteous, not to say presumptuous, a remark; but I could not permit it to be understood, Sir, that I am so ignorant of my mother tongue as to employ such an absurd conjunction of adjectives as "fair and liberal," and not only import them where they were not needed, but where their use, even if proper in themselves, would be absurd. If I had wished to convey disapproval in the same sense, my habits of thought would, I hope, have inclined me to use the word "just" in preference to any other. But I really had no surprise to manifest, and certainly none at the absence of such a subtle spirit as is involved in the semi-contradiction of the terms "fair and liberal."

What I did intend to express was, that, having worked for several months in the room built for Mr. Constable on the Marine Parade, Brighton, and also at the Polytechnic Institution, London, for some days, both of which rooms were glazed with blue glass, my experience justified and corroborated your statement, that it had been tried, and found inferior for all practical purposes to white glass. But—and this is the point which must have led to the error—I did not think, even with this proved, that the question was exhausted, or that you were justified in pronouncing absolutely for or against white or blue glass. As far as dark blue glass is concerned, I am satisfied. But, Mr. Forrest proposes a very light blue; and, although I do not think any advantage will follow its use (of course, to outweigh disadvantages), it is certain that what is true of dark blue is not necessarily true of light blue, and that thus your remarks did not conclusively settle the case.

The dark blue glass I believe with you darkens materially by exposure; and it has always appeared to me that a much more simple and inexpensive mode of application would be to insert a disc of blue glass in front of the lens. This would, I think, determine the value of its asserted accelerative power at once; while the glass, partially protected from strong light and the influences of weather, would not be so liable to darken, and, if changed in tint, could be replaced.

One word more. My remarks—and I must presume myself more than ordinarily obscure—on the evening of the meeting, tend to throw a shade of disrespect, which I did not intend, on the person confiding to me the mode of transferring positives—an itinerant photographer. Very few persons are likely to have read what I said, and the person alluded to, is still less likely to recognise himself in your pages, even if he should see them, which is hardly probable. But, to avoid even the possibility of injury being done to a person whom I had no right to consider other than deserving, I would wish to say, what I believe I expressed, that the portrait I drew was a first impression, and that I found it entirely incorrect. He shewed me fully and efficiently his mode of transfer, which I have since practised. He seemed, as far as I could judge, a well-informed person; and I considered, at the time, my fee a most judicious investment.—Your obedient servant,

Liverpool, Feb. 9, 1858. JAMES T. FOARD.

[Our reporter, having read Mr. Foard's communication, states that the report in question conveyed a faithful impression of that gentleman's observations, and that it was substantially correct, though perhaps not verbally so.—ED. L. & M. P. J.]

ANSWERS TO CORRESPONDENTS.

T. B. P.—The glass used by M. Claudet and by ourselves at the London Institution, is Chance's British sheet glass. Our objection to blue glass is founded upon the fact that we often wish to copy objects which possess all the natural colours; now blue glass cannot illuminate properly such objects, as must be obvious upon the slightest reflection. The glass room might with advantage have less *wood* at the side. We do not see reason to make any other observation.

DELAWARE.—Address as directed. N. B. stands for North Britain. We have no other address.

H. H. H.—The book was sent to us direct. Probably any bookseller could order it through some London house. We do not know anything of the actino-hydrometer, but see vol. iii., No. 29 of this *Journal* for a description. Such instruments are empirical in character. Our correspondent requests information as to the strength of the sulphuric acid to be used in the collodion transfer process. Will any one who has succeeded in this matter be good enough to give a formula?

AY LONGA VITA BREVIS.—The letter and suggestions of this correspondent shall have attention in our next number.

AMATEUR.—We have not met with the defect you speak of: add a little alcohol to your collodion, or change your sample. Is your new bath saturated with iodide of silver and filtered? If not, attend to these points. It is difficult to answer questions relating to materials of which we know nothing with certainty.

A. T. B.—A quarter plate portrait lens will answer for taking stereoscopic negatives of all kinds; but use a small stop.

T. LAW.—Your plate, notwithstanding your apparent care in packing, arrived broken to pieces. Its defects are hardly to be made out. Do you drain the plate well? Is your camera frame dirty, or saturated with some injurious matter? Cannot you get your materials tried in a different frame? For black varnish dissolve asphaltum in benzol; or better, try a quick-drying black varnish.

Our correspondents will observe that a change in the management of the *Journal* will take place with the next number. Any one who has been good enough to send queries which have remained unanswered, through requiring experimental investigation or further enquiry, may depend upon his request receiving attention as early as possible.

☞ All photographic correspondence and communications are for the future to be addressed to "The Editor," George Shadbolt, Esq., 2, Upper Hornsey Rise, N., Middlesex. Proper attention to this notice will prevent delay, and further the objects of correspondents.—Ed. L. & M. P. J.

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Copy the address, Mr. W. LANE, Photographer, 213, Western Road, Brighton.

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A circular, containing all particulars, forwarded on receipt of a directed and stamped envelope.

MOULE'S PHOTOGRAPHIC ROOMS, Hackney-road, opposite Durham-street, London.

The

Liverpool & Manchester Photographic Journal.

New Series. No. 5, Vol. II.—MARCH 1, 1858.

Were we of a timid disposition, our sensations on assuming the reins of government of the *Liverpool and Manchester Photographic Journal* would probably be of no enviable character, following as we do a gentleman so renowned in the photographic world as Mr. Malone, whose *experience* is probably unsurpassed, and whose *talent* has acquired a reputation not to be questioned. It is much to be regretted that impaired health, combined with the pressing nature of his other avocations, have compelled Mr. Malone to relinquish the editorship of this *Journal;* he has however kindly promised the benefit of his assistance and advice in any way consistent with reasonable demands upon him, so that we may hope that contributions from his pen may occasionally find a place in our pages.

After the formation of a new ministry, we believe it is the practice for one of the principal officers of state, on the meeting of the Houses of Parliament, to promulgate a statement of the views and intentions (somewhat vaguely it may be) of the newly-formed body; and we propose in our humble way to follow the example set in so exalted a quarter, seeing that if we expect to retain our present subscribers and to acquire new ones, it is but reasonable that we should make them acquainted, as far as possible, with our proposed policy.

The end and object of all scientific enquiry is, or ought to be, the attainment of truth in all its integrity: this then will be our especial aim, and although we cannot at all times hope to "hit the mark" at the first attempt, we shall, as often as occasion calls for it, modify any theory we may have been induced to promulgate, and thereby lay ourselves open to the charge of *inconsistency* from those whose organ of caution is so largely developed that they are scarcely able to express even an opinion without its being doubtful to the hearers as to the side to which the verdict is accorded. At the same time we do not purpose recklessly to theorise; but if we regard the mode in which our present acquaintance with matters of science in general has been arrived at, we cannot fail to perceive that, after the collection of a large number of facts bearing upon a subject, some clear-sighted observer propounds a theory capable of demonstrating all the known phenomena connected therewith, while others devise various experiments as tests of the theory put forth. Under these tests theory frequently fails; but by some slight modification it is made to include the new phenomena observed. From time to time facts come to light which require still further amendment in the supposed laws, until at length, by dint of care and perseverance, "the truth—the whole truth—and nothing but the truth" remains.

But it sometimes happens that a theory (as in the case of all those yet advanced in connection with the phenomena of light) may be known to be faulty in exceptional points of detail, and yet may be clearly true as regards generalities; it does not therefore follow that we should absolutely and entirely discard a useful adjunct to our means of explanation, simply because it may not be abstractedly faultless. The very fact of our being alive to the weak points, should preserve us from falling into errors that might be occasioned by them.

In order to arrive at the truth, then, we purpose to admit into our columns the most perfect freedom of discussion, but coupled with the special proviso, that all personal or offensive imputations shall be rigorously expunged.

Every branch of photographic art will, in its turn, engage our attention; and though it is of course impossible but that we, in common with others, must have our preferences, we trust that we shall be found to maintain a tolerably strict impartiality. It is not in editors, more than in other mortals, to command success, but we can at any rate do our utmost to deserve it. Finally, we propose at all times to render any assistance in our power to our various correspondents, by way of clearing away difficulties, suggesting explanations, remedying defects of principle in manipulation, and, generally, by according our best advice upon the subjects upon which they may consult us.

We hope to make our correspondence a prominent feature, by publishing the letters, when this course is not objectionable, as well as the replies, and thus render the whole intelligible to the general reader as well as the individuals primarily concerned. By so doing, we hope in some measure to obtain the advantages which we observe are generally derived from the familiar intercourse of those engaged in prosecuting the same or similar pursuits; and finally, we shall use our best endeavours to render our readers *au courant* relative to all that is going on in photography generally.

MOLECULAR IMPRESSIONS BY LIGHT AND ELECTRICITY.

On the 29th January a lecture was delivered at the Royal Institution by Mr. W. R. Grove, "*On Molecular Impressions by Light and Electricity*," a subject of the highest importance as connected with the *science* of photography. As an instance of the mode in which the molecular organisation of bodies effects its influence upon others subjected to it, the following fact was cited, viz., that carbon, in the form of *diamond*, transmits light, but arrests electricity; while carbon, in the form of *coke* or *graphite*, into which the diamond may be transformed by heat, stops the rays of light, while electricity is freely transmitted.

The number of substances proved to be molecularly affected by light, is so rapidly increasing, that it is by no means unreasonable to suppose that all bodies are, in a greater or less degree, changed by its impact. As an instance that occurs to us in our own experience, we may mention having noticed a short time back, while waiting for a train at the Fenchurch-street terminus of the Blackwall Railway, a common deal board, upon which a printed placard had been posted, and which, at the time we saw it, had just been divested of the bill; every letter of it was distinctly visible upon the board, and though somewhat faint in colour, the whole could be readily deciphered.

The following experiment, demonstrated by Mr. Grove, is also well worthy the consideration of photographers. Letters cut in paper and placed between two well cleaned sheets of glass, and by the aid of tin-foil on the outer surfaces, converted temporarily into a Leyden apparatus, and then subjected to electrical influence, had invisible images of the letters impressed upon the interior surfaces, which were capable of visible development by simply breathing upon the glass plates. But further, if the impressed surfaces were coated with collodion and excited in the usual way, then exposed to *uniform daylight*, and the developing solution applied, it was found that the molecular impression produced by the electrical agency was conveyed to the film of collodion in such condition, that it became visible to the eye after the chemical development. This may go some way towards clearing up the mysterious appearances of spots, streaks, &c., upon plates apparently and actually well cleaned, coated with pure chemicals, and excited in well filtered baths; for if the plates, *before cleaning*, happen to be laid in proximity with one another, having particles of any extraneous matter in close contact with them, and while in this condition become exposed to the action of a strong light or electrical agency, both circumstances of highly probable occurrence, it follows that a latent impression of the said extraneous particles would be generated, which would become apparent under the developing agent, *notwithstanding the intervening cleansing* of the plate by any of the ordinary methods; hence the importance of keeping one's stock of glass plates clean, instead of soiled, as is too commonly the case; and if protected from the light, an additional safe-guard will be adopted.

We cannot conclude this notice, without remarking upon a most ingenious suggestion, thrown out by Mr. Grove, in connection with photography as applied to astronomy.

With the most perfectly-constructed telescopic object-glass or speculum, the magnifying power capable of being applied to the image formed by it is limited; the dilution of its intensity to an extent in which the details become lost to the eye from insufficiency of light defining that limit; but may it not be possible, instead of magnifying the *visible* picture, to take instead a photographic impression, and then, by the aid of adventitious light, apply microscopic power to the photographs, and thus reveal to the eye details upon a much larger scale than would have been submitted to it by the ordinary method. The idea is highly ingenious, and well worth the most carefully-conducted experiments: we fear, however, that a power much exceeding that employed in the eyepiece of a good telescope will tell too strongly upon the structure (we use the term in an empirical sense) of the collodion or other medium upon which the photograph is taken.

PHOTOGALVANOGRAPHY.

The following is an abstract from a Paper read by J. Ryley, Esq., at the meeting of the North London Photographic Association, on the 27th January, 1858.

1. I dissolve one ounce of fine glue in three ounces of distilled water, and to one ounce of this solution I add thirty grains of nitrate of silver, previously dissolved in half an ounce of distilled water; to the other two ounces of glue solution I add two ounces of a saturated solution of bichromate of potass, and while warm I add to it the nitrate of silver, and mix well.

2. I level a glass plate and pour over it as much of the above solution as will, when quite dry, form a film about the thickness of thin writing paper.

3. I now expose the plate to sunlight under a glass positive for about three hours, or until all the details of the picture appear when viewed by transmitted light.

4. I then wash it under water until those parts of the picture which are the least acted on by light become granulated, which is caused by a peculiar contraction of the film; the superfluous moisture must then be removed by blotting paper.

5. You may use a negative instead of a positive, but your exposure must not be more than half the time, and you will still have a positive result, and the grains of your film will be much finer; and now let me remark that in this granulation lies the whole secret of the process, and yet, strange to say, not one word can you find respecting it in the specification, and therefore I contend that all patent right is justly forfeited.

6. A mould in gutta percha is then taken from the film and rendered conductive by plumbago or other means, and put into the electrotype apparatus until you have a deposit of copper of sufficient thickness to form a matrix, from which you can deposit a thick copper plate strong enough to print from.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

At a meeting, on Thursday, the 24th February, the Council of the Historic Society of Lancashire and Cheshire confirmed the motion for the amalgamation of the late Liverpool Photographic Society with their own body. The Secretary of the Historic Society was requested to invite the members of the defunct Society to all their meetings from that date. The amalgamation of the Societies will require to be confirmed by a second meeting of the Historic Society, ere it can be legally completed.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

The last meeting of this Society was simply of a conversational character on a subject that could only be interesting to the members present, namely, the advisability of having a *soirée* at the time of their annual meeting; we do not think it therefore necessary to furnish a report.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION

At an ordinary meeting held at Myddleton Hall, Islington, on the 24th February, 1858, Geo. Shadbolt, Esq., Vice-President, in the chair, the minutes of the previous meeting having been read and confirmed, several gentlemen were elected members.

Mr. Geo. Dawson read a paper "*On Positive Printing*," which a press of other matter prevents us from publishing in this number, but it is in type, and will be given in our next. Mr. Dawson also promised another paper "*On the Causes of the Fading of Positive Prints.*"

A vote of thanks was given to Mr. Dawson for his interesting paper and kind promise.

An animated discussion ensued in which many members took part.

The Vice-President explained his printing process, which caused an interesting conversation.

A vote of thanks was passed to the Vice-President for his valuable communication.

The Rev. John Winter and Mr. Henry Barnett were appointed auditors of the accounts.

Papers on the following subjects have been proposed:—

Mr. W. Hislop—"*On the Meta-gelatine Process.*"

Mr. Geo. Dawson—"*On the Causes of the Fading of Positive Prints.*"

Mr. John Dutton—"*On Experiments connected with the Wax Paper Process.*"

Mr. W. Hislop—"*On the Method of Printing Transparent Collodion Stereographs on Wet Collodion.*"

Mr. J. A. Judge—"*On the Wet Collodion Process.*"

Mr. W. Hislop—"*On the Optics of Photography.*"

Mr. John Dutton—"*On the Chemistry of Photography.*"

Rev. John Winter—"*On the Calotype Process.*"

Mr. W. Hislop—"*On Working Wet Collodion in the Field.*"

Mr. Geo. Dawson will exhibit a very portable tent, and Mr. W. Morley an ingenious camera.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

At the meeting of this Society, on the 9th ult., Professor Kelland read a paper "*On the Education of the Senses; with its bearings on the subject of Photographic Portraiture,*" in which he stated that his object was to shew that all our senses are subject to a training contemporaneous with the education of the mind, which sits in judgment on the facts they present to it. That important question is not so much, what are the phemonena, as what are the inferences which the mind is likely to draw from them? Numerous examples were adduced of a perverse interpretation of facts presented through the hand and the eye. With reference to vision, the author particularized two kinds of training, which he designated nature-training and art-training; and stated that to the former we owe our usually accurate estimate of size, position, distance, &c.; to the latter, the perverseness of our likings and dislikings, the changing fashion of dress, the obliquity of judgment which could cherish Barrot and Conway and starve Richard Wilson, the national or local taste which makes a Frenchman prefer the French style, and an Englishman the English style of art prevalent at the time.

The author concluded in the following terms: If you have followed my argument, you will see that it has been my endeavour to make out—

1. That our perceptive and interpreting powers are the result of education.

2. That this education is, for the most part, carried on without our consciousness.

3. That the skill acquired is so subtle, that whilst it is in action we neither know how we call it into play, nor the fact that it is called into play at all.

4. That thus the minutest change in what is presented to us may influence our judgment to a vastly disproportionate extent, at the same time that we are absolutely ignorant of the facts on which our judgment rests.

If these conclusions are admitted, it will be at once clear, that, under certain circumstances, a portrait may differ widely from the original without producing any disagreeable effect; whilst under others, a difference quite imperceptible and not to be accounted for shall destroy the resemblance or render it unpleasing. It is this last class of facts which our President, in his opening address, referred to, when he said "that a photographic portrait is not a favourable representation of a sitter." Sir David uses strong language, and it must be confessed that many of our distinguished professional members have, by careful study of effects (although it is possible they may be ignorant of the causes), contrived to obtain a more favourable verdict for their portraits. But Sir David is enunciating a *law*, and we will not quarrel with the terms he employs, seeing that his design is in the right direction. There cannot be a question of the applicability of this law to the more delicate operations of photography. To one class of images, indeed, this law of distortion, or whatever name you give it, does not apply at all, or if at all, not to such an extent as to render its discussion in the present state of our knowledge a profitable employment. I allude to the image of a flat surface, such as a print.

But for solid bodies the case is very different, and the result cannot fail to be injurious to the delicate fidelity of representation of near objects with large lenses. If a line in the object be in the continuation of the axis of the lens, its image will be formed of light received by only half the lens: hence lines will receive a shading due to the lens itself. And it will be easily seen that this shading will be of the most perverse kind. A solid cusp, (the edge of an adze, for example,) will be shaded from the edge on the convex side, and to it on the concave. There cannot be the smallest doubt of the reality of these defects. They are obvious now that Sir David has directed attention to them. That they are fatal to the use of large lenses is a point on which I can give no opinion. What amount of defect may be "overlooked" in practice is for practical men alone to determine. But I would caution those who aim at excellence against overlooking small matters. Mr. Sutton, who, in his reply to Sir David, uses this word, appears to restrict it to the case of points in a solid body, which, by the intervention of others, are visible by rays from the margin of the lens only. But I am sure he will see that points may be found in many solid bodies which will suffer eclipses of every magnitude, and consequently that it is no small matter which he requests us to overlook. Whilst speaking of Mr. Sutton, I may add, that the argument adduced by him at pp. 461, 462 of his *Notes*, is directed against the phraseology of Sir David, but has no bearing on the facts. Granted that the image of a point is a point, and the images of ten points, ten points,—what has this to do with the fact that the image of a solid as seen from one part of the lens is different from that seen from any other part? That the fact is so, is abundantly evident, in whatever form of words we enunciate it. If, for example, the object be a sphere, the different cones whose vertices are different points in the lens will all touch it in different circles.

The amount of injury sustained by photographic portraiture from this circumstance is another question. There are some countenances, on the expression of which a slight change of the shadows makes so great a difference, that photography has not as yet succeeded in doing them justice. The large-eyed round-faced girl presented to us so repeatedly in *Punch*, might sit in any position and come out the same, but faces of a more delicate type of expression do not stand such rough treatment. In their case, when the husband or the lover exclaims, "It is not pleasing!" the artist must not copy old Nollekins, and reply, "I can't help that;" but must strictly conform himself to the custom of Sir Joshua Reynolds, and cry out, "We'll make it so, we'll make it so." By trial and error, if not by direct study, the peculiarity which stamps a face may generally be faithfully rendered, or so nearly so, that criticism shall be disarmed.

But there are exceptions; and photographers owe Sir David a debt of gratitude for directing their attention to so important a source of error. I have no fear of its being overcome. With one piece of advice to the photographic artist I will conclude. He should carefully register the criticisms of the intimate friends of every sitter; and if, out of these, honestly expressed, his brow should gather shadow rather than sunshine, he may, by setting himself doggedly to get at the root of the evil, find the means of mitigating, if not altogether removing it.

FRENCH PHOTOGRAPHIC SOCIETY.

(From the "Bulletin de la Société Francaise.)

At the meeting of the French Photographic Society, held on the 22nd January last, a letter from M. L'abbé Torné was read, from which the following is an extract:—

"I submit to the notabilities of the Photographic Society, my work upon a new optical instrument, which permits the production of portraits of life size, without any exaggeration, with a large field of considerable sharpness above all in the way of depth. Every photographer possesses instruments which have been used for one part of my experiments.

"In fact a whole plate, double combination lens attached to the front of a long tube, and a similar quarter plate lens arranged at the back end will do. These lenses will demonstrate the theory, and will only shew the possibility of the result that one ought to obtain with object-glasses of short focus and of the same diameter.

"Several years back, I perceived theoretically that the small inverted image in a camera, being nearly in the same condition as that on the slide of a magic lantern, like it, could be refracted, enlarged, and rectified upon a screen sufficiently distant. Several weeks back I mounted my instrument with ordinary Daguerreotype lenses. I placed a newspaper five metres, (about sixteen feet,) behind the house; an entire room became my camera, and at the end, upon a sheet of white paper, I read the different articles in the journal. A group of children was reproduced upon a surface of a yard and a half square.

"In this instrument I perceived two defects; as in ordinary Daguerreotypes, there was not sufficient prominence, and further the exposure was necessarily very long.

"The instrument is composed of a single or double achromatic objective, of very short focus, entering into a long tube attached to the camera. In the inside of the camera, at the extremity of the tube, is a second single or double achromatic object-glass of a focus equal to the former or still shorter. These two objectives can be adjusted to a shorter or longer distance apart, by means of two racks in front of the tube; the front lens has a diaphragm that draws off to circumscribe the field of view. Two simple diaphragms are in the interior of the tube, to arrest the diffused light formed even in the most perfect instruments.

"The first objective forms an image in its focus. Since this focus is very short, it can only have a sharp field that is very contracted, but the second object-glass takes only the image formed in a surface equal to that of the former; it is then sufficient that the front objective shall have a sharp field equal to the length of its diameter. It is requisite that the sitters or other objects should be sufficiently distant from the lens, to allow of their images being included within the interior of the tube. A second object-glass of a diameter smaller than that of the former will only take a part of the image; it is necessary then that the object-glasses should be of the same diameter: if the two have an equal focus, the image will be formed at a distance equal to that of the object from the anterior lens.

"On moving the back combination towards the front one, a picture is produced larger than nature; and on reversing this action, a smaller picture is obtained. The posterior lens may be of a shorter focus than the other."

In the extract above given, an apparently useful contrivance is suggested; but it will be found on consideration much more plausible than real. It must be borne in mind that the image formed in the focus of a lens, or combination of lenses, is always more or less *curved*; and though this curvature is in the best constructed objectives reduced to a minimum, so that the portion of the field employed approximates more or less to a plane surface, the curvature to some extent always exists; but what is of more consequence as regards this proposed arrangement, the curvature is in the *worst possible direction* with respect to the second lens or system of lenses employed to enlarge the image formed by the other set, and exactly in the same proportion as the enlargement, is the amplification of the errors of definition.

But another serious objection exists to the use of the two lenses as here suggested—that is the enormous length of time which would be required for the exposure, which would be in direct proportion to the square of the enlargement of the image—in other words, the shorter the focal length of the lenses employed, the slower would they work. An illustration will explain this more clearly, thus—we will presume that a figure five feet high is reduced by the first combination to *six inches*, or one-tenth of its actual size, and that it requires an exposure to produce an impression, say of fifteen seconds; but if this same image be enlarged again to its natural size—that is ten times its diameter—the same number of rays would have to cover a surface of *one hundred* times the area, and would consequently require, theoretically, an exposure one hundred times as long, or twenty-five minutes; but in fact this would not be nearly enough, because a very large portion of this light would be lost by *absorption* in being transmitted through the second lens. Now, if the lenses employed were only of half the focal length supposed, the amplification would be double in diameter, or four times the area, hence the exposure in this latter case would be, theoretically, *one hour* at the least.

The distance of the subject would require to be quite as great as from the lens as if a single combination were employed with equal conjugate foci; if, therefore, life size be desired, it would be in every way more easy of application to construct specially a lens for the purpose, quite as economical, and producing better results. The principal of enlargement from a negative picture, was originally proposed in 1853, by Mr. F. H. Wenham, at the London Photographic Society, who exhibited several paper proofs, life size, of portraits that he had printed upon calotype paper; the only difference in the present arrangement is the enlargement of the optical images instead of its photographic impression; but with this serious objection, that whereas the long-continued exposure required, even under favourable circumstances, is fatal in one case, though not in the other. Moreover, the amount of light capable of being condensed upon a negative, is far greater than can possibly be obtained when the optical image is substituted.

The matter was referred to a sub-committee of the French Photographic Society to report upon to that body, and we have no doubt but that when their report appears, we shall find the view we have taken corroborated.

We give in this number a part of the paper, "*On the Production of Natural Colours by Light*," which was read by M. Becquerel, at the meeting of the French Photographic Society, on the 18th of December last, but want of space compels us to allow the remaining portion to stand over until the next number.

M. **Ed. Becquerel** said,—I have often been asked to give a general account of my researches on the production of colour by the action of light, and I now do so with much pleasure, although my experiments were made several years since, and are not directly available in photography. But as the substance which possesses the remarkable property of receiving coloured impressions from light is susceptible of very singular physical modifications, I have thought it desirable to enter into such details as may be requisite, for those who take an interest in such investigations, to reproduce easily the results I have obtained.

There are a great many substances sensitive to the chemical action of light; certain of them shew a partial or total decomposition: such as certain compounds of silver of lead, of mercury, of gold, of platinum, &c.; others require the presence of substances which can react upon them, such as chlorine in the presence of hydrogen, chromic acid in the presence of organic matters, guaiacum in the presence of oxygen, &c.; but in general, whenever a partial or complete decomposition takes place, or when a chemical reaction is manifested, the colour of the impressed substance changes, but generally presenting only a monochromatic tint, depending on the nature of the new substance formed.

If we take for example iodide of silver, which loses its yellow colour to darken in the light, the new colour is independent of the refrangibility of the rays which acted. To study such effects properly, we must use the solar spectrum, that is to say, the image formed by the dispersion of the solar rays, by means of a prism: if we receive this image upon a surface of iodide of silver, the latter begins to change colour in the violet part of the spectrum, and even in a space beyond the violet, then in the blue, that is in the most refrangible part of the visible spectrum: but the colour of this substance, which is brought out more and more as the rays act, has no relation to the acting parts of the spectrum.

In operating with other substances we find the chemical action manifested in a different part of the spectrum, but we come to an analogous conclusion. And to resume, we may say, that each susbtance is sensitive within different limits of refrangibility, and that when once the action has been completed, there is, in general, only one uniform tint produced which does not correspond with the tint of the rays which have acted.

Nevertheless, amongst all the substances tried, there is one which seems to present several tints when exposed to the action of the spectrum: this is chloride of silver. When prepared in the ordinary way it takes a violet tint under the action of diffused light, at length it becomes brown. If we expose the chloride to the spectrum, it begins to colour in the ultra-violet and in the violet; then, if the action is prolonged, and if there is in the camera diffused light, the chloride assumes a brick-red colour in the red part of the spectrum, as was observed by Scheele. Herschell and Mr. Hunt, who have studied the action of light on various sensitive papers, have also observed that the chloride became red in the red portion of the spectrum. Besides this, we know that the chloride coloured violet becomes, on heating, of a reddish tint, similar to that observed in the red part of the spectrum. We may ask if this latter effect is not due to the action of heat. However this may be, the chloride when it begins to change is slightly violet, just as it changes in the most refrangible part of the spectrum; while, on the other hand, it assumes a reddish tint in the least refrangible part of the same spectrum. It is a curious coincidence this, that the two extremities of the spectrum should change the one to violet in the violet, the other to red in the red.

I began in 1838 and 1839 to study this subject, and I then thought that the effects of colour produced in the visible part of the spectrum were due to heat, but this is not the case.

I began by examining into the conditions necessary for obtaining well marked results. If the chloride is obtained, not upon paper by double decomposition, but precipitated in a test glass and placed upon glass or porcelain, the chloride being kept from the light, as soon as we project a spectrum upon it we find that it is impresed only in the ultra-violet, where it takes a slight violet tint which darkens more and more; but nothing is produced over the visible part of the prismatic image on using a pure chloride free from excess of nitrate, and first impressed by the light: this effect is very noticeable. In the violet the tint deepens, and is similar to that produced by diffused light: in the red a slight rose tint is obtained; but there is no very evident action in the yellow or green, although there is slight discolouration observable.

If the chloride is obtained upon the surface of paper plunged successively into salt water and nitrate of silver so as to retain an excess of nitrate, the effect is not the same. In this case if the paper has not been previously exposed to the light and no action is manifest, except in the ultra violet, or if the paper has been exposed and becomes sensible in the blue and red, there is then an action of continuation, and the effects of colour feeble if at all observable.

It next occurred to me to prepare the chloride of silver directly, by attacking a silver plate by chlorine, either gaseous or coming from the decomposition of a chloride. I at first operated by exposing a plate of silver to the action of chlorine gas: the plate became greyish-white, and on projecting upon it a spectrum no distinct phenomena were obtained excepting only a greyish tint in the violet manifesting a chemical action. I then attacked the plate by chlorine from chlorine water, and better still, by immersion in the chlorine water itself, for a short time: it became covered with a greyish-white coating, and the action by light was very different. After projecting a spectrum on its surface for some minutes I found, on examination, that I had a *souvenir of the spectrum* fixed upon the plate, the parts corresponding exactly to the luminous portions of the solar spectrum. The place where the red had fallen was of a pale red. The yellow was yellow, the blue blue, &c. On replacing the plate, and allowing the spectrum to act longer, these colours disappeared, and there remained only a grey tint, which extended over all the space of the visible spectrum. I then saw that it was not by a mere coincidence that the chloride of silver, exposed to light, became red in one part of the spectrum and violet in another; but that the unaltered white chloride was probably mixed with sub-chloride, that is with a chloride having one equivalent less than the white chloride, and that this latter substance gave rise to the tints observed.

I next substituted for chlorine water solutions of chlorides, hypochlorites, &c., capable of yielding chlorine to a plate of silver, and I obtained, as with the first solution, surfaces capable of reproducing the image of the spectrum with its colours. That which succeeded best, and the composition of which I gave in 1848, at the time of the publication of my first memoir,* was a solution of bichloride of copper. The following preparation is easily made. Take sulphate of copper of commerce and common salt, put these two salts in excess in a test glass with some water; on dissolving bichloride of copper forms. Mix one volume of this liquid with one volume of a saturated solution of salt and six volumes of water: then plunge a plate of silver or plated copper into this liquid, so that it quickly takes a violet tint due to the formation of a slight coating of chloride of silver. It thus becomes impressionable to the action of the spectrum, the principal tints of which it reproduces. The silver plates ought to be extremely pure, for this operation renders evident the least trace of foreign matter existing in the surface.

I must add that this manner of preparation, though simple, does not allow of increasing at will the sensitive coating. I therefore abandoned it in my later researches† for a method which gave me a coating, yielding remarkable results and having any desired thickness. This process consisted in bringing little by little, by the aid of electricity, nascent chlorine to the surface of the plate. The silver was attacked and yielded a proper sensitive coating.

(To be continued.)

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* Presented to the Academy of Sciences, Feb. 7, 1848, and inserted in the "Annales de Chimie et de Physique," 3rd series vol. xxii. page 451.

† "Annales de Chimie et de Physique," 3rd series, vol. xxv. page 447 (1849). See also vol. xlii, page 81.

EXHIBITION OF PHOTOGRAPHS AT THE SOUTH KENSINGTON MUSEUM.

THIS is a supplementary exhibition, held by the London Photographic Society for the winter months, that body having determined to hold its regular *annual* exhibition in the months of May, June, and July, at their own rooms in New Coventry-street.

The locality selected, though perhaps the only one available under present circumstances, we cannot but regard as highly objectionable, on account of its distance from a central position, while we very much question the wisdom of holding a supplementary exhibition *at all*, as it appears to us calculated to annihilate anything like a concentration of interest in the annual collection.

The present exhibition was, on Friday, the 12th ult., honoured by the presence of her Majesty the Queen, H. R. H. the Prince Consort, H. R. H. the Princess Alice, and several members of the Court in attendance upon the illustrious visitors. The following day (Saturday) was devoted to the private view by the members and their friends, and on Monday it was opened to the public generally.

On inspecting the collection we could not help being struck by the conviction that it is rather one of *professional* than *amateur* photographers; for (though we do not mean to assert that there are not some amateur productions,) there is a marked absence of many of our familiar names, including some of the highest reputation. No doubt this is in consequence of their reserving themselves for the summer display, where their works can be seen without the compulsory pilgrimage to the far-west.

Another remark that forces itself upon our attention is the fact of a large portion of the pictures consisting simply of *copies* of drawings, paintings, &c., while a still larger portion consists of portraits—the majority of the latter being simply so described, without reference to the individuals delineated, which, in the cases in question, are correctly left anonymous, as they are likenesses of those unknown to the public.

The total number of frames exhibited is 705: of these no less than 74, or one in every ten, are copies; and where the originals are good, especially amongst the paintings, the photographs of them, with some few exceptions, will certainly not add to the reputation of the original artists. Amongst the exceptions we would especially notice No. 22, *The Abandoned*, after Clarkson Stanfield, R.A., by Messrs. Caldesi and Montecchi, in which the effect of the painting is beautifully preserved; and No. 64, copy of an old engraving of Raphael's *Holy Family*, by Roger Fenton, which would puzzle a novice to distinguish from one produced by the burin. Now, in objecting to *mere copies*, we would not be understood to include such subjects as the present, firstly, because the original is not only of high value in an artistic point of view, but one that cannot, from its nature, be multiplied in any other manner without an enormous expense, if at all, and certainly not with the fidelity and accuracy attained in the present instance; and secondly, because the care bestowed upon the manipulation is quite equal to the occasion. We mean these remarks to apply to both of the numbers quoted.

Portraits of eminent characters always command a considerable amount of interest, and in this collection there are many, including, at the head of the list, a good likeness of the Prince Consort. There are also artists, scientific men, and many of the notabilities of the church, the bar, the army, &c. But portraits, however excellent, of *unknown* individuals, are simply valuable to the public as evidences of the skill of the producers, and as such, surely two or three from each exhibitor would be sufficient to be admitted.

Now *in addition* to 75 portraits, of which there is either a *name* or some description given, we have here no less than 110, of which there is *no description of any sort*; being upwards of one in *seven*—or including those named, one in four of the whole exhibition—and this is exclusive of *groups of figures*, which are regarded rather in the light of composition. The effect of so large an admixture of this class of productions is, to our mind, to dilute the value of the whole without any equivalent good.

Having been compelled to give expression to so much that we consider condemnatory, in order to fulfil conscientiously a public duty, let us turn to the far more pleasing occupation of pointing out what we consider deserving of commendation.

To begin, then, the room appropriated to the pictures is one well adapted for the purpose, and the gentlemen who have undertaken the onerous and frequently odious task of arranging them, have accomplished it in a most judicious and what ought to be satisfactory manner to every exhibitor. This is not saying a little, as only those who have tried such a feat can be aware of the difficulties in the way of even an approximation to such a state of things.

The works are generally well classified, being massed as follows, viz:—copies of drawings &c., portraits of unnamed originals, coloured photographs, works of extensive contributors, such as Fenton, Lake Price, &c., but with a certain proportion of them mingled with one another, by which arrangement unity of design with well marked contrasts are both attained. On glancing round the walls we recognise many works with which we are already familiar, though they have not appeared in all probability in any London exhibition before. In the post of honour is an excellent likeness, by Lake Price, of H. R. H. the Prince Consort, No. 404:—we need scarcely add artistically posed, having already named the exhibitor, but as critics we feel bound to notice a *fact* that somewhat lowers the work in our estimation as a photograph, that is, a stopping out of the back ground by artificial means. We understand that the figure itself has not been tampered with. We do not condemn artists for resorting to any means by which they can add to the effect of their productions *as likenesses*, but we feel bound, when comparing the merits of various specimens of *photography*, to accord the palm to *untouched* specimens in preference to touched ones, however beautiful the latter may be made to look. In the present case the interference with the integrity is perhaps as little as can be done where any at all has been resorted to.

On the same screen, but to the extreme left, is a production which will, we venture to predict, command a very general interest with every visitor. The eight bridesmaids of the Princess Royal are there in one group, No. 373, by Messrs. Caldesi and Montecchi. They are perhaps scarcely as sharp as some of the pre-Raphælite photographers would prefer, but that very fact will add to the charms in some eyes.

Arranged on either side of it, and in the centre, are five frames, Nos. 400, 401, 405, 409, and 410, containing ten views, taken by command of Her Majesty, of Roseneau and Coburg. These, to an experienced eye, require nothing but simple inspection to proclaim them as the production of Francis Bedford. They are remarkable for the exquisite perfection of finish for which this gentleman is famous; in fact, Mr. Bedford's works may be regarded as the cabinet pictures of photography.

Holding these pictures as well as others of the same artist in very high estimation, it may appear somewhat unreasonable to offer a suggestion, by the adoption of which we conceive that some few of them might have been improved, but we are convinced that had a smaller aperture to the lens employed been used for *two or three* amongst them, where there is a *considerable amount of remote distance*, the effect would have been better.

We are no advocates for using a very small aperture in all cases, in fact our bearing is towards the opposite direction, but optically there is a sound reason for adopting small apertures, where the distance between back and foreground is very great.

Nos. 413 and 414, by Mr. C. Thurston Thompson, are very beautiful productions, the former an *Oak Tree*, the latter (our own especial favourite) a *Lane Scene in Surrey*. No. 395, Shiere Heath, by the same artist, is also deserving of notice.

Nos. 396 and 415, the *Memnonium at Thebes*, by F. Frith, are two of an extensive series of Egyptian views of the highest interest, both as regards the subjects and the execution. The wonderful impress of truth, the brilliancy of the atmospheric effects, the transparency of the shadows, the perfect rendering of every point and scratch in the stone, all combine to excite an amount of pleasurable satisfaction in the spectator rarely to be surpassed.

Nos. 391, *Retour de Chasse*, and 420, *Don Quixote*, are both of them familiar to most Londoners, having been conspicuous objects in the shop windows of Messrs. Negretti and Zambra, in Cornhill, for some considerable time.

Perhaps the most remarkable work in this exhibition is No. 476, *Two Ways of Life*, an allegorical representation of the roads to virtue and vice, by O. J. Rejlander, of Wolverhampton. This picture is produced by printing from a very large number of negatives (some 50 or 60), but in such a manner that they compose into one harmonious whole; portions from the different negatives being all printed upon a single sheet of paper, but without the limits of each being perceptible, the blending of one with another having been most perfectly accomplished. The method by which this has been attained has not been made public—a circumstance to be regretted, as we consider it as calculated to open up a new era in photographic manipulation. Report says that this picture was refused admission at one of the exhibitions in the north, on the alleged ground of indelicacy—a charge which we regard as quite unfounded, and which might, with equal propriety, be brought against any partially-draped figures. The primary *idea* of the subject, if not absolutely new, is certainly so as regards photography.

Nos. 507 to 538 inclusive are thirty-two of Roger Fenton's gems, executed with his usual skill, consisting of statuary in the British Museum, architectural subjects, and views in Wales.

Mr. Lake Price was one of the first, if not the first, photographer who made an attempt to introduce the ideal into our art; and the present exhibition includes five more of his most happy efforts in this direction, viz., 610, *The Mountain Daisy*, being a bare-legged peasant girl at a small mountain stream, backed by picturesque rocks, with a goat and other accessories; and a series of four, Nos. 550, 554, 561, 564, designed to illustrate De Foe's tale of Robinson Crusoe, so dear to our childish recollections. In one of them Crusoe appears alone, with his spoils from the wreck scattered in picturesque confusion; in the others he is accompanied by Friday, surrounded by his domesticated pets, goats, parrots, &c., while the various articles are now arranged in equally picturesque order.

No. 542, *Studies of Fishermen, Hastings*, and 609, *Dutch Fishermen*, by W. M. Grundy, are worthy of attention. Dr. Mansell has lost none of his cunning in the production of *St. Peter's Port, Guernsey*, No. 605, where the immense amount of detail in no way deteriorates from the effect of the picture as a whole. Mr. Llewelyn is a large contributor, and maintains his well-earned reputation; but of all his pictures we prefer a *Woodland Scene at Penllergare*, No. 531. We must not omit to notice a highly useful scientific application of photography in Mr. Crooke's Photometeorographs, No. 372.

The *Leviathan* figures rather largely — we mean no pun—in this exhibition, being presented in every possible position, except upside down,—Nos. 112 and 115, by Robert Howlett, being perhaps the best. No. 142 is a large picture, of considerable merit, by A. J. Melhuish, of Blackheath, and represents the *Thames, Greenwich, and Blackheath*. It is taken from one of the hills in Greenwich Park; and the sinuosities of the river, bearing on its bosom the numberless vessels, combined with the buildings on either bank, compose a most agreeable whole.

We are somewhat puzzled to understand how some few coloured pictures, including especially Nos. 452 and 461, have gained admission, seeing that one of the *regulations* requires an uncoloured copy of every coloured photograph to accompany it. It appears to us that this regulation should be *adhered to strictly*, or abrogated altogether.

Amongst the portraits we recognise many who bear names of note; with some of the forms we are already well acquainted, with regard to others, we are highly pleased to have an opportunity of familiarising our eyes with the lineaments. Most of them are pleasing representations of the originals. How unlike some we have constantly noticed of late in the shop windows in every direction, professing to be likenesses of some of our eminent statesmen, but which serve only to recall to our mind the idea conveyed in the transatlantic phrase—face-mapping.

Good as many of the portraits undoubtedly are, there are none, in our opinion, that equal in excellency of execution those of Mr. T. R. Williams generally; but we would single out particularly Nos. 271, 272, 273, 274, 278, and 279, which are no less elegant in design than perfect in manipulation; in short, they are our beau-ideal in photographic portraiture.

METHOD OF OBTAINING PURE SILVER, EITHER IN THE METALLIC STATE OR IN THE FORM OF OXIDE.

By W. Gregory, M.D., F.R.S.E.

We have hitherto recommended the use of iron to reduce chloride of silver. Dr. Gregory here states his objections to the iron method, and offers a new process worthy of a trial.

"The chemist, as well as the metallurgist, has frequent occasion to purify silver, especially from copper, which is dissolved along with it by nitric acid, the proper solvent of silver. By converting the silver into the insoluble chloride, it is effectually purified from copper as well as from all other metals, the chlorides of which are soluble. But here the difficulty begins; the chloride of silver is a very unmanageable product, at least in the moist way. It is true, that if placed in water acidulated with hydrochloric acid, in contact with zinc or iron, the chloride of silver is reduced. But the process is tedious, seldom complete, and in the end unsatisfactory, for some zinc adheres to the reduced silver, so that it is not removed by digestion with moderately strong hydrochloric acid. This is proved by the action of ammonia, which extracts a good deal of oxide of zinc. Moreover, the zinc or iron is hardly ever pure, and its impurities, arsenic, carbon, and perhaps also copper and tin, remain with the silver. I have never got from silver thus reduced a colourless solution of nitrate.

"After describing the objections which attach to the different methods which have hitherto been adopted for obtaining the silver in a state of purity, the author says, the following method appears to me the most advantageous:—

"The cupreous solution of silver is precipitated by common salt, while hot, and the chloride of silver well washed by decantation with hot water. It should also be broken down with a spatula of platinum, or a glass rod, during the washing; but not ground in a mortar, which causes it to cake, and impedes the action of the potash. The chloride, *while still moist*, is covered to about half an inch with a solution of caustic potash, specific gravity 1.25 at least, and then boiled. During the boiling, which is best performed in a capsule of clean iron, silver, or platinum, the chloride is to be well stirred, in order to bruise all curdy or lumpy particles. If a small portion, taken out and washed, do not dissolve without residue in dilute nitric acid, the potash is to be decanted off, and the powder, still moist, is to be well rubbed down in a mortar, which may *now* be done with advantage. It is then returned into the capsule, and again boiled for five minutes with the same or with fresh potash. It will now dissolve entirely in nitric acid, but if not, a second grinding will infallibly succeed. It is now only necessary to wash the oxide, which is completed by decantation in a few minutes, as the powder, from its great density, sinks at once to the bottom. The first two or three washings are made with hot water, the remainder with cold water; for when the oxide is nearly washed, it rises partially to the surface with *hot water*, and thus a loss is occasioned in decanting. Of course, the whole washings (except the first, owing to the strength of the potash) may be conducted on a filter; but the powder is so fine, that probably a good deal would adhere to the paper when dry.

"This oxide of silver appears in a form quite distinct from that of the oxide precipitated by potash from the nitrates, and is hitherto undescribed. It is very dense, homogenous, and has a pure black colour, which has, if anything, a tint of blue, whereas the common oxide is bulky, far less dense, and of a greyish brown colour. They appear, however, to be chemically identical. Not having a microscope, I have not studied their physical characters minutely, but I suspect, from its aspect in the liquid in which it is formed, that the new oxide is crystalline.

"It is obvious that the above process furnishes an easy method of procuring a very pure oxide of silver, and of course the action of heat gives us the silver in the state of metal. It is, I conceive, applicable both to the manufacture of nitrate (in a state of absolute purity) and to the metallurgic process for obtaining pure silver. For both objects, it is a matter of no consequence if some chloride should have escaped the action of the alkali. This chloride is left undissolved by the nitric acid, and is separated by filtration, while if the oxide (not quite free from chloride) be mixed with a little nitre or carbonate of potash, and fused, the whole silver is obtained with the utmost facility. In order to give an idea of the ease with which the whole is performed, I may mention that I dissolved a half-crown, and obtained the whole of the silver it contained, within a very trifling fraction (chiefly decanted in the *first* washing of the chloride, *but not lost*), by the above process, *within two hours*, in a fused state. The silver was quite pure. There is no doubt that to chemists also an easy method of obtaining quickly pure oxide of silver, in a form much less hygrometric than the usual one, will be acceptable.

"It is particularly to be noticed, that if the chloride *have once been dried*, it is with great difficulty decomposed, even by a long boiling with potash."—*Philosophical Magazine.*

CORRESPONDENCE.

ECLIPSE OF THE SUN.

Owing to want of space in our last number, the following letter of Mr. Foster was necessarily somewhat curtailed; but as it relates to an important application of photography, and is still in good time, we now give it entire.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Allow me to call the attention of photographers, through the medium of your widely circulated columns, to the annular eclipse of the sun, which will take place on the 15th of March next. The occurrence of an annular or total eclipse is always an occasion of deep interest to astronomers, on account of several remarkable phenomena which have been observed in connection with them. Perhaps the mosts ingular of these is that known as "Baily's beads," from having been first minutely described by the astronomer of that name, and which may be briefly described as follows:—A few seconds before the annulus is formed, the approaching horns of the crescent are connected together by a row of "beads" of light, with intervening dark spaces, giving a serrated appearance to the edge of the moon's disc. As the moon proceeds, the dark spaces become elongated and narrow, as it were stretched out into threads, which threads suddenly break and vanish, and the annulus is complete. As the moon approaches the opposite limb of the sun, the same appearances are repeated in an inverse order; a number of black threads dart out to meet it, which grow thicker and shorter, till the beads are reproduced as at first, and finally disappear as the annulus breaks up. This extraordinary phenomenon is supposed to be an optical illusion produced by the influence of irradiation; but it must be confessed that the explanation is not very satisfactory, and further observations are needed in order to come to a decisive conclusion. It is a remarkable fact that the appearance is not always observed, and even in the same eclipse some observers see the phenomenon while others do not; something appears to depend on the colour of the glasses used to protect the sight.

Now it is obvious that if a series of photographic representations of this phenomenon could be obtained, they would be of inestimable value in assisting to come to a satisfactory conclusion as to the real cause of the appearance in question; and I wish to induce photographers, especially those who have the good fortune to reside in places where the eclipse will be annular, or nearly so, to endeavour to obtain impressions on their collodionized plates of the various phases of the eclipse. There are no such difficulties in the way as beset lunar photography; the only apparatus required being a view lens (the longer focus the better) and camera, with some arrangement for opening and closing the lens instantaneously. I have obtained an instantaneous negative of the sun's disc with a lens of fourteen inches focus, with a diaphragm one-twentieth of an inch aperture. The lens was opened and closed by a sliding shutter with an opening of half an inch in diameter in its centre, which was made to fall by its own gravity before the front of the lens. The aperture of the diaphragm must, of course, be adjusted so that the instantaneous exposure may produce an image of the proper intensity. The image will, of course, be small, (with the above named lens it is about one-eight of an inch in diameter), but it may either be enlarged or examined by the microscope. The collodion employed must of course be perfectly structureless, in fact just what is necessary for taking microscopic photographs.

The eclipse will be central over a line extending across England, from near Bridport in Dorsetshire to about the centre of the Wash. To all places on this line, and a *short* distance on each side of it, the eclipse will be annular, though the annulus will be very narrow, and will continue only a few seconds (twelve or thirteen at the most). The principal towns near the line of the central eclipse are Sherborne, Devizes, Swindon, Oxford, Buckingham, and Peterborough. At London it will be partial only; but an extremely narrow crescent will remain visible, as ·276 of the sun's disc will be obscured.

Hoping that many of your readers will be induced to experiment in solar photography, and that on the occasion of the eclipse their efforts will be productive of some interesting results,

I am, yours, &c.,
R. W. FORSTER.

Whitehaven, Feb. 10th, 1858.

FAILURES IN PRINTING.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have just been trying my hand at printing, for the first time, and I find my efforts so unsatisfactory, that I am induced to trespass on your editorial kindness to give me some hints as to the failures. My negative collodion I procured from Horne and Thornthwaite; I developed as directed with pyrogallic acid. 1. I found that if I put, as directed, a few drops of the bath in the developer, it would turn quite black. However, I did bring out a picture, but it appeared to me to be simply a *positive*, the whites not quite so pure. 2. Not having seen *negatives*, I can't judge how they should look; my idea is there should be greater depth in it for a *negative*, that is, the shades more opaque; I printed from it, and the result I enclose. 3. The next difficulty I found, was to get a good *dark colour* to the print. I first washed the paper, after taking it out of the frame, with water; then placed it in the hypo bath, four ounces to twelve ounces of water—I could detect no great change of colour; then I placed it in the toning solution, hypo-soda four ounces, water twelve ounces; gold four grains, water one ounce—mix. The results of all the processes you see in the enclosed—very little darkening beside what the light has produced. 4. In the first place I let the albumen paper remain on the nitrate bath about ten minutes the day previous. Your opinion in the next *Journal* will greatly oblige,

Yours very truly,

Holywell, Feb. 13th, 1858. E. J.

[1. In developing a fresh collodion plate, it is not often that any addition of solution of nitrate of silver is required, there being generally a sufficiency remaining on the plate after exposure, unless this operation has been unusually protracted; but if the addition of a few drops (say four or five) to the pyrogallic acid solution causes it to blacken very soon, it is an indication of there being a *deficiency* of *acetic acid*, therefore increase your quantity of this material. 2. A good negative looks like a very much *over-developed* positive, the high-lights and half-tones being indistinguishable by reflected light, the shadows often presenting a light orange-coloured appearance. In taking a negative, the exposure in the camera should be, at least, double the time required for a positive, but the same collodion is not applicable; it should contain more pyroxyline and more iodizing material. 3. The colour of the paper positive depends very much upon the density of the negative from which it is printed—that from which yours is printed is evidently *very weak*. When this is the case, a partial remedy is found in giving an excessive redundance of free nitrate of silver, or what amounts to the same thing, 4. Float your paper on the exciting bath; *dry it*, and float again; again dry, and float a third time, if you use but one bath, but a simpler plan is to use a much stronger solution.—Ed. L. & M. P. J.]

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Will you in the next number of the *Journal* give me information on the following point:

1st. All my negatives lack density. I am working with a collodion that has been iodized ten weeks, still I get feeble negatives. Would the use of glycyrrhizine be of service, or is it advantageous only when the collodion is new? I am using Ramsden's negative collodion.

2nd. Which of the keeping processes do you recommend? I have some thoughts of trying the collodio-albumen, as I am told that it allows of great latitude in the time of exposure, and I find that my chief difficulty lies in regulating the exposure.

3rd. Whichever of the keeping processes I adopt, what method of changing the plates do you prefer? I have heard of a very ingenious dark box, constructed by Mr. Atkinson, of Liverpool, and another by Mr. Dancer, of Manchester. I have not an opportunity of seeing these.

4th. For taking the small stereoscopic pictures do you prefer a portrait combination or a single lens, and if I use the portrait combination, where should I place the stop?

5th.—Is a camera with *two* lenses preferable to that with one. I know that in the pictures taken with a double-lensed camera, the prints require to be reversed before mounting, and thus additional labour is created; but in using a dry process, where an exposure of ten minutes is sometimes necessary, a twin-lens camera would seem to possess advantages. Is the stereoscopic effect as good in one case as in the other.—I am, yours truly,

Pembroke College, Cambridge. D. HORNBY.

[1st. It is not easy to state, without having seen and examined the negatives as well as the chemicals employed, what is the cause of want of intensity. It may proceed from too great an amount of free acid in the bath, especially if it be the nitric; an excessive quantity of free iodine in the collodion would have a similar effect: over-exposure in the camera leads to a like result, as well as checking the development too soon. We are unacquainted with the particular collodion you mention, and therefore recommend you to proceed as follows, viz.:—Test your bath with litmus paper; if it turns red rapidly, add, drop by drop, a solution of carbonate of soda (common washing soda), until a small quantity of a white deposit falls and *is not again dissolved;* you will then have neutralised your bath; the deposit may be allowed to subside, pouring off the supernatant fluid, or it may be filtered out through bibulous paper. If the collodion be highly coloured, introduce a slip of silver foil, or in default of that, a piece of clean metallic zinc, until the excess of colour be removed, leaving it a pale straw colour: glycyrrhizine in alcohol, added in very minute proportions to the collodion, will certainly increase the intensity, but also the necessary time of exposure in the camera. If, after the rectification of the bath and the collodion, you are still deficient in intensity, mix with your developing solution, just prior to using it, an equal bulk of *honey syrup*, made with equal proportions of honey and distilled water warmed and filtered. The developer should be—pyrogallic acid two grains; water five drachms; Beaufoy's acetic acid three drachms; or else pyrogallic acid two grains; citric acid one grain; water seven drachms; alcohol one drachm. If the syrup be added, the fixing should be with hyposulphite of soda. After fixing and washing well, if the details are all present, but the intensity is still insufficient, you may, *before drying the plate,* materially increase it by first washing with *distilled* water, then developing again with the same mixture as before, but adding, say three to five minims of the nitrate bath; wash well with common water, but do not fix again, as that operation is not required. 2. We have seen good pictures with all the keeping processes; the particular one you select should be chosen rather with regard to your own special requirements and conveniences. Our own practice is generally with simple honey syrup, if we wish a plate to keep only from twenty-four to forty-eight hours, as it is more rapid in action than a dry plate; but if we want a plate to keep an indefinite time, we generally use Dr. Hill Norris's process. We have seen admirable results from the collodio-albumen, as also from simple gum water. Do not constantly change from one to another, but select one and persevere in following it out until successful. One reason for our using the honey generally is this, that if the plate be not used within a reasonable time, we can readily *wash off* the honey syrup with warm water, and then coat it with gelatine, after Dr. Norris's plan.—3. We do not remember the contrivances you mention for changing the plates; but of all we have seen—and their name is legion—we prefer, as most efficacious and scarcely more expensive, a separate dark frame for each plate we carry out. Most people attempt to expose too many pictures in a day or a journey. A good light tight-racked box to keep the stock of sensitized plates in, and say half-a-dozen dark slides for a day's use, will be found quite enough, in general, for plates of 9 × 7 or larger. Stereoscopic plate-holders, or rather dark slides, are *less costly* singly, than for a considerable number to change. 4. A portrait combination for figures certainly. It can be used for landscapes by placing a stop with a *small* aperture midway *between* the lenses. It is easily made—a double thickness of brown paper will answer very well. It is of course heavier and more expensive than a landscape lens, and no better for the latter purpose. We use two sets of lenses, one for each purpose, the cost of the small landscape lenses being but moderate.—5. We prefer two lenses generally, for the reason you name; but we do not always use them simultaneously when operating upon moist collodion. The *stereoscopic* effect can be as well regulated with two as with one lens, but the focal length of the lens should not be left out of the account. We shall shortly have something to say both about stereoscopic cameras, and how to use them.—Ed. L. & M. P. J.]

COLOURING THE BACKGROUNDS OF COLLODION POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Allow me to direct the attention of photographers to a mode of colouring the back-grounds of collodion positive pictures which I practice, and which causes them to look very well. Dissolve one ounce of gum arabic in three ounces of boiling water. Take a small quantity of red lead and ultramarine in dry powder, grind them very fine, and add a little flake white to give a body. Mix and thin down with the gum water to the required consistence.

To apply this, place the picture, which must be previously varnished, horizontally, with the head towards the operator, that is upside down, and commencing at the side next you, with a small pencil *float the colouring material towards the edge of the figure,* then with a larger pencil go over the whole plate, round the head, and finish at the bottom on the further side.

Any tint can be produced by using the common powder pigments sold, such as lamp-black, red lead, vermillion, umber, dragon's blood, yellow ochre, chrome yellow, &c. By a little care in laying it on not a stroke of the brush need appear, and if desirable you can stipple powder colours on the ground, when dry, to any shade you please. I shall be happy to afford any further information upon this subject in my power.

I am now about to request some instruction in return from my brother operators. I have seen in Bradford some portraits beautifully *white* in the high lights; those ordinarily taken are of a dingy tone. I presume the effect I admire is produced by some re-development after the picture is fixed and washed in the ordinary way. Any information as to the method of effecting this desideratum will much oblige,

Your obedient servant,
WILLIAM ANDERSON.

Bradford, Feb. 23, 1858.

[We have been making experiments upon this point ourselves, and although we can accomplish partially our object, the resulting tone is too much of a cold bluish tinge to suit our taste. Perhaps some of our correspondents may be more *au fait* and willing to communicate their experience.—Ed. L. & M. P. J.]

ENLARGED NEGATIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I read Sir David Brewster's remarks, made sometime ago, in the London Journal, on large and small lenses, and also the means he points out to obtain portraits without distortion, one of which is to take a small picture at a great distance, and afterwards to enlarge the negative thus taken.

I have tried this enlarging process, but find that *transparent positives* only can be obtained by it, similar to those taken by Mr. M'Innes, two or three years ago. Perhaps the learned professor means that the pictures shall be enlarged on paper (though he does not say so), if so, it is a very tedious and very unsatisfactory process.

I should be glad to know if anything can be done in the way of enlarging negatives? A great deal has been written and said lately about positive pictures—next in value to positive transparencies—but little or nothing about obtaining really good negatives, the most valuable of all.

I am, Sir, Your obedient servant,
A SUBSCRIBER FROM THE FIRST.

23*rd February*, 1858.

[It is not to be expected that an *enlarged* negative should be equal in all respects to one taken direct; because not only are all the faults in the *original* negative materially increased by enlargement alone, but errors of manipulation, as well as some small optical errors, become superadded. The sharpness of detail becomes somewhat impaired even under the most careful manipulation, though this fact is regarded by some as an improvement. The best way of procuring enlarged negatives, so far as our own experience extends, is by first making a transparent positive by direct contract, and then enlarging from that in the camera. If it would be generally interesting we might give an article upon the subject.—Ed. L. & M. P. J.]

PHOTOGRAPHER'S PHARMACOPŒIA.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In looking over your truly interesting *Journal*, and seeing your remarks, I am inclined to believe that great good might be done, and many things made known, by your appropriating a small portion of your *Journal* for the various formulæ, collodion developers, *modi operandi*, &c., to be called the "Photographer's Pharmaeopœia," or "Vade Mecum." Flaming advertisements have often induced me, and no doubt many others, to purchase articles which have been worse than useless, and it is time we had a ready and cheap way of arriving at correct formulæ without filling our libraries or houses with an endless number of shilling books, which lead us into expense for the various articles used, and then forget to explain the correct mode of using them. By so doing the advertisers sell their books, and we pay for the annoyance. After your amateur readers have experimented, and spent the amount of money that I have, they will, I think, agree with what I say. If you think this scheme worthy of consideration, I shall be glad to contribute some of the various formulæ I have had the opportunity of proving to be good, and no doubt many of your readers will do the same.

ARS LONGA, VITA BREVIS.

Sheffield, February 18*th*, 1858.

[We insert your communications as the readiest means of eliciting an expression of the wishes of our readers upon the suggestion offered. We shall be happy to insert any formulæ attested by our contributors, but cannot undertake to make the experiments for the purpose of verification; nor indeed would this be necessary as a rule, our experience being sufficient to guide us in most cases. It must be borne in mind that the collodion, the nitrate bath, and the developer, are all *parts of a whole*, and therefore should be adapted to one another.—Ed. L. & M. P. J.]

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have to thank you for your valuable information (on the dark shade under the chin), in your last *Journal*, which plan I have adopted, and found it to answer admirably. I merely wish to notice, that I tacked a piece of light blue calico, three-quarters of a yard deep, across the front of the *tent*, which is eight feet high—if ever you are asked on the question again.

Very respectfully yours,
MICHAEL O'TOOLE.

Armagh, Feb. 12*th*, 1858.

ANSWERS TO CORRESPONDENTS.

J. Bourinol, York.—Your micro-photographs are not *quite* in focus; that on the slide, covered with green paper, is not much out, but it is a little: it is a very creditable production for a beginner. The power by which it is viewed should not exceed that with which it is taken, as you will otherwise separate visually the particles of silver forming the picture. In *cold* weather you may use a smaller portion of citric acid in the developer with advantage, which will allow the deposit of silver to be effected more rapidly, and consequently in smaller particles; try the following:—water, two ounces; pyrogallic acid, four grains; citric acid, one grain.

Edward Thomas Hobson.—If you wish to tone and fix your paper proofs in one bath:—First float the proofs, on removal from the pressure-frame, upon a bath composed of a teaspoonful of salt to a quart of water, rinse in plain water, and then immerse it in the following bath, which should be at least four days old, viz.—water, six ounces; hyposulphite of soda, four ounces; then chloride of gold, six grains, dissolved in two ounces of water, to be poured into the former solution and allowed to stand. The changes of colour will be first brick red, brownish red, warm brown, purplish black, blue. You can arrest the progress at any colour you prefer. Wash well, using *hot* water at least once during the operation.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 6, Vol. II.—MARCH 15, 1858.

We have cordially to congratulate our brother photographers upon the announcement of an observation recently made by Mr. Hadow, and confirmed by some experiments of Mr. Hardwich's, as well as by certain facts in our own experience, *that the actinic impressions upon collodion films are effected as rapidly at a low temperature as during the heat of summer*, provided that the quality and intensity of light be equal in both cases.

This, be it observed, is not put forth as an indisputably ascertained fact, but simply as a conclusion arrived at by Mr. Hadow from practical experience, and, to a certain extent, corroborated by that of others; and although it may at the first glance appear to be contrary to the results obtained by the generality amongst photographers, the case is not, upon consideration, so evidently antagonistic as might be imagined.

Photographers have found more difficulty in producing a picture in cold than in moderately warm weather; have lengthened their exposure and have then obtained their object more readily, hence they have reasonably concluded that at a low temperature an impression is not so easily made. But Mr. Hadow affirms that by using a more *energetic developer* the impression with the lesser exposure will be developed, and it is manifest that no amount of development could render it visible *if it were not in existence*. Mr. Hardwich uses a very powerful de-oxidising agent, acetate of proto-oxide of iron, and finds the assertions of Mr. Hadow borne out. We find that in cold weather the retarding action of a vegetable acid in the developer is inconveniently powerful, and remedy the annoyance by a decrease of the quantity used. In very warm weather we find our deep shadows will not remain clear under development, and rectify the defect by the addition of more vegetable acid in the solution: these facts tell in the same direction. An account of what took place at the meeting of the London Society will render our readers acquainted with all that has been published upon the subject, and we invite their consideration of the best means of pressing our newly acquired information into practical service.

In another column will be found Mr. Hardwich's interesting paper upon the subject. That reminds us of a recommendation we would offer to our readers upon the use of acetic acid, which, we regret to say, is often sold as glacial when there is a large amount of water present. If when glacial acid is directed, thrice the volume of Beaufoy's acid be used instead, we think there will be fewer disappointments in consequence of foggy pictures.

We regret that the present number will only be in the hands of the public on the very day of the great eclipse of the sun, as it will not be in time to make generally known the very ingenious suggestion offered by Mr. Crookes, at the last meeting of the London Photographic Society, for obtaining a good sized photograph of the phenomenon in question. This he proposes to effect by using a very shallow concave spectacle lens as a *reflector*, and forming an image of the sun at a distance of four or five feet, which will have its visual and actinic foci perfectly coincident.

We have been somewhat amused at a remark in a contemporary's critique of the South Kensington Exhibition of Photographs, evidently written by somebody who is perfectly innocent of the photographic mysteries: it runs as follows:—"The *chemical* curiosities are Mr. C. J. Taylor's 'Oriel College and St. Mary's, Oxford,' (356), developed on the spot without any dark Lens, citric and not acetic acid being used. * * *" What is a *dark lens?* Is that the chemical curiosity, or does our worthy friend think there is any novelty in using citric instead of acetic acid? The fact is, he has copied exactly the label attached to the pictures, which we have no doubt has been itself copied by some assistant from not too legible writing, which probably ran thus—"without any dark *tent*,"—nothing being said about a substitute for one. While on this subject we may as well mention that the Council of the London Photographic Society have decided upon issuing *season tickets* for the Exhibition, entitling the holders to admission to any *soirees* that may be given, the first of which was held on the 13th instant.

We find that the new lens recently announced with such a tremendous flourish of trumpets, by Herr Pretsch, turns out to be a very ordinary affair after all. We protested against the proceeding at the time the paper was read, because, though much was said upon what the lens was professed to do, not one word of real description of its construction was offered, and while it was affirmed to consist of *three* pairs of lenses, it turns out that no more than *two* pairs are ever used at the same time.

M. Claudet has invented something very novel as regards stereoscopic science, which he is now putting into shape. It is an arrangement by which pictures will be viewed in correct relief without looking at them through lenses or any equivalent. We hope shortly to be able to lay a description of the apparatus before our readers, as also one of a new form of instrument recently introduced by Mr. Salmon, of Leadenhall Street, termed the *calosynthetic stereoscope,* and which was exhibited the other evening at the meeting of the London Society.

We have been favoured with information concerning an improvement of importance in some of the dry processes, but, as the experiments in connection with it are still in progress, we have not permission as yet to make it known; we trust, however, that the gentleman to whom the honour of the advance is due will publish it in good time for our army of field operators to avail themselves of it in the ensuing spring.

The Secretary and one of the members of of the French Photographic Society attended the London sitting, on the 2nd instant, and were received with a most cordial welcome by their London brethren, a pleasing manifestation of the fraternising influence of our delightful pursuit.

THE LATE ROYAL BRIDESMAIDS.—One of the best photographs of the fair young ladies who attended the Princess Royal to the altar, which we have yet seen, has just been issued by Messrs. Colnaghi. It represents the brilliant group in the order in which they followed the young bride, in the attitudes in which they knelt behind her at the concluding portions of the service. So accurately, indeed, is the "train" represented that it seems hard to believe the picture was not really taken during the progress of the ceremony. The likenesses, of course, are perfect, and even the dresses, though the most difficult that ever fell to the lot of a photographer to reproduce, are copied with a minute accuracy that is almost marvellous. At the foot of the photograph is a fac-simile of the signature of each of the young ladies, which, while in a manner guaranteeing the perfect accuracy of the likeness, will add to the general interest of the work in the eyes of the public.—From *The Times,* 8th March.

[The above paragraph alludes to the photograph, a copy of which is now being exhibited at the South Kensington Museum, and which we noticed in our last number.—ED.]

LIVERPOOL PHOTOGRAPHIC SOCIETY.

THE following notice appears to indicate that the amalgamation of the late Liverpool Photographic Society with the Historic Society is now complete:—

"HISTORIC SOCIETY.

"A special general meeting of this society was held on the 4th instant, in the grand jury room, St. George's Hall, the Rev. T. Moore, M.A., in the chair. The object of the meeting was to consider, for the first time, in accordance with the provisions of the 'Literary and Scientific Institutions Act, 1854,' a proposal of union with the Liverpool Photographic Society on the following terms, which have already been twice agreed to unanimously by that body, namely:—

"1. That the Photographic Society become part of the Historic Society—that is, that it accept the laws and name of the latter.

"2. That the number of sections, as fixed by the present laws, be not increased; but that communications on photography be admissible at all the ordinary meetings.

"3. That a photographic committee be appointed annually at the commencement of the session, like the committees for printing, finance, the library, &c.

"4. That it be allowable for the authors to print papers on photography in anticipation of the annual volume of transactions, at the discretion of this committee.

"5. That the property of the Photographic Society become the property of the Historic Society, and that the members of the Photographic Society be enrolled without entrance fee.

"6. That the union date from the 31st of March, 1858, if the preliminary arrangements be complete by that time.

Also, to consider a recommendation of the Council of the Historic Society to alter its laws, by enacting that no member whose subscription is in arrear at the time of issue of the annual volume of transactions shall be entitled to receive the volume.

The recommendations above-named were agreed to unanimously.

MANCHESTER PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting of this Society was held on the 3rd instant, in the rooms of the Philosophical Society, George-street.

The Secretary (Mr. COTTAM), announced that a number of prints had been received from Mr. Braun, to replace those which were lent to the Art Treasures' Exhibition, and which had been seriously damaged there by damp, &c. Mr. Braun had sent prints which were, if possible, superior to the former ones, and had also added one of a view as a donation to the Society's portfolio.

The Society's thanks were awarded to Mr. Braun, and a committee was appointed to consider the best mode of preserving the prints.

The following letter was read from the Rev. W. J. Read, announcing to the meeting that he was unavoidably compelled to postpone the reading of his paper "*On the Optics of Photography*:"—

Woodlands Park, near Altrincham, March 1st.

MY DEAR SIR,—I am sorry to have to inform you that I am a prisoner to my room from severe illness, and that it is quite impossible for me to read the paper prepared for Wednesday evening. Unfortunately I cannot hand it to you for reading in my stead, as I had intended the principal explanatory portions to be not written but oral; it will, however, be at the disposal of the Council whenever they may desire it.

I may take this opportunity of communicating to the Society the fact that I have, in making my drawings in illustration of one part of the paper, come across a simple modification of the stop ordinarily used, which will, to a great extent, prevent solarisation of skies, and may, under favourable circumstances, enable us to combine natural clouds with landscape detail. I feel that this is a very valuable and quite new addition to our artistic capabilities, and shall rejoice to lay it before the Society at the earliest possible day.

I have the honour to remain, my dear Sir,
Yours very truly,
W. J. READ.

S. Cottam, Esq., Hon. Sec. Manchester
Photographic Society.

Messrs. Sidebotham and Nevill exhibited positives on dry collodion, and collodio-albumen from negatives, taken by them in Paris. The exposure had been twelve seconds to five minutes. Two contained groups of children, which had only required some fourteen seconds.

Mr. SIDEBOTHAM strongly recommended all experimenters in collodio-albumen to wash their plates in distilled water after the ordinary washing following the sensitising of the two films. Some of Mr. Neville's positives were by wet collodion by artificial light.

The CHAIRMAN expressed a hope that every one would endeavour to obtain photographic representations of the solar eclipse of March 15th. He suggested the employment of lenses of long focus, instantaneous collodion, and slow development.

Mr. BROUGHTON shewed some glass positives on wet collodion, taken by artificial light, and adapted for placing in windows like the semi-transparent porcelain plates, which are prepared for that purpose. The effect produced is very agreeable, and the meeting was much pleased with this application.

Mr. BROTHERS mentioned the plan adopted by him to recover the silver consumed in printing. It was merely to save all cuttings of paper, and burn them, preserving the ash until a sufficient quantity had been obtained, which was then to be fused in a crucible; the result being a nearly pure mass of silver.

The CHAIRMAN referred to an easy mode of recovering silver from washings, by throwing into the liquid a few new, bright pennies. He also alluded to the cost of producing nitrate of silver, which appeared to be nearly the amount at which it is sold.

A conversation then arose as to washing prints, about which a variety of opinions were expressed, and a suggestion made that members should exhibit at the next meeting, as many prints as they could, stating their ages and mode of washing, &c. employed. Mr. PARRY promised a communication on Microscopic Photography for a future meeting.

The Society's next meeting will be on 7th April.

LONDON PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting of this Society was held March 2nd, 1858, Dr. PERCY, Vice-President, in the chair.

After the reading of the minutes, a discussion arose concerning the correctness of the description of what had taken place at the previous meeting.

Four new members were ballotted for and elected members of the Society.

The CHAIRMAN: Gentlemen, I have great pleasure in making the announcement that this evening we are honoured by the presence of two very eminent gentlemen in connection with photography,—one being M. Laulierie, the Secretary of the French Photographic Society.

Mr. ROGER FENTON: Sir, I have had the opportunity of taking a series of pictures by Professor Petzval's lens, and I may as well, before shewing them, state that there are three double lenses, but only two pairs of these are used for taking landscapes, and the other pair is substituted for the back combination arranged for landscapes for taking portraits; in no case are there more than four lenses used for taking a single picture, so far as I am at present informed.

I took, on Thursday last, a picture with the full aperture of Professor Petzval's landscape lens, three inches and three-eighths, exposed for three minutes and a-half, with the sun shining, and a cold easterly wind blowing. The picture was over-exposed, which appears to injure its sharpness.

The next picture is taken by the same lens, stopped down to about three-quarters of an inch, exposure given three minutes, and the definition is good. I cannot say that it is equal to a single lens which I am in the habit of using stopped down to the same aperture, through a larger glass, but it is certainly very tolerable; at the same time the lens possesses a peculiar excellence in copying architecture, for it gives the lines with remarkable straightness.

The third picture I took contains objects presenting very different planes. It has a church in the distance, with a house down the lane. When I first tried it, only one portion of the picture was in focus, the more distant part was quite out of focus. I then altered the paralellism of the ground glass, and advanced the side of the picture upon which the image of the church fell about half an inch. In this case the focus came pretty sharply upon a line starting at the corner of the church and going down, its sharpness commencing at *this* point, and going through the railing, which formed the termination of the picture on the right; at the same time there is considerable depth, so far so that *these* houses are in tolerable focus. At the same time you will notice that the lines are much straighter than you will get them with an ordinary landscape lens giving a picture of the same size. That picture was taken with an aperture of about seven-eighths of an inch. The focal length is twenty-six inches.

Here is a picture taken with one of Ross's lenses; *that* was with one of Shepherd's lenses: the aperture is three-quarters of an inch, the length of focus twenty-seven inches, and the time of exposure the same as with Ross's lens and Petzval's lens, viz., three quarters of an inch, and I think it will be seen that the picture taken with Shepherd's single lens, has greater range extending over more ground than the new combination of Professor Petzval's; at the same time it has a much larger angular field.

The pictures were handed round the room.

Mr. SHADBOLT:—At the time the paper of Professor Petzval was read by Herr Pretsch, I took exception to his putting forth a statement of what the lens was alleged to be capable of doing, without *any description whatever of the construction of that lense.* I think it has been proved by Mr. Fenton that my objection was a perfectly sound one, inasmuch as it was stated that that lens was composed of three pairs, whereas we are now informed that it is composed of only two pairs, one pair being interchanged with another for special purposes; I therefore regard the original statement as a false pretence. Mr. Fenton has done enough to satisfy the minds of those not interested optically in the question. I would draw attention to one picture especially, the one in which he has managed to get a church and a distant house in tolerably good focus, even with the lens. Now, the arrangement he made, of putting the ground glass a little aslant, that is to say, making use of the swinging bath of his camera, was simply another arrangement for taking a plane surface. The test of a lens that can take distant and near objects, both in tolerable focus, which we know can be managed by cutting down the picture, would be this, viz., provided you can get *both sides* of a street, and some object in a remote distance all equally good. If you incline the ground glass of your camera in order to meet your object, you do not test the lens for that quality.

Mr. SALMON exhibited several variations of a new form of stereoscope, called the calosynthetic stereoscope, which is constructed upon principles designed to produce a more just conception of the real magnitude of the object depicted, as well as to afford a greater amount of illumination than usual.

A paper by Mr Grubb was then read, "*On some Optical Principles involved in the Construction of Lenses,*" which (although in type), want of space compels us to omit till our next number.

The SECRETARY: Perhaps there may be some gentlemen present who can answer some questions by Mr. Grubb, with respect to this new lens. That gentleman says,—"I am curious to know anything or everything about Voigtlander's new lenses, and there is one thing which should not be overlooked, viz., that the *angular field* of a lens should be measured, not by that which the sensitive surface subtends, but by that which *the extreme objects included* subtend to the camera. In an ordinary view lens (as also mine), the latter angle is greater than the former; the lateral pencils suffering deflection *towards* the axis as they pass through the lens. And when a concave lens or combination is added behind the first lens, the contrary *may* (at least), take place. The great object of the photographer (I take it), is to procure a lens which will take in a *larger angle of subject;* the size on which this is depicted will be governable by the focal length; therefore, in all cases the angular field of a lens should be measured in accordance with these principles, and which is readily done. I should like to hear what the angular field of Voigtlander's new lens is *so* measured."

Mr. SHADBOLT: Unless Mr. Fenton has ascertained that, you can have no answer, for it seems that no one else has had an opportunity of even looking at the lens of M. Petzval.

A MEMBER: I tried both the lenses for Herr Pretsch, and the long focussed lens that I tried against my own was *rather slower*, so of course I considered no advantage gained, but when I tried the short focussed one, it was brighter, quicker, and sharper than anything I have ever seen.

The SECRETARY described a new stereoscopic slide, by Mr. A. Burns. It consisted of a slight wooden frame, somewhat resembling a slate frame, but with two sets of grooves, into each of which a piece of milled-board was slid, like the sliding cover of a box. The internal dimensions allowed two plates of glass to be contained within it, one over the other, with a piece of blackened millboard between them. Silver wires, at all four corners, held in one piece of glass, the black milled-board was next put in, then a piece of crumpled paper, or anything slightly elastic, and lastly the second glass plate was slid into its place, two of the corners at one end being held in position by silver wires at the angles, while the opposite end was made fast by a wood, ivory, or silver button. Of course the plates were placed back to back, with the sensitive sides outward, each slide being thus adapted to take two negatives.

CHAIRMAN: Mr. Hardwich will now make some remarks on the effect of the present cold weather regarding development.

Mr. HARDWICH: I have, I regret to say, left my paper, on the Action of Salts of Iron in Developing Collodion Impressions, at home (see p. 74,) and therefore must content myself with shewing some specimens I have with me. My operating room is not heated, and the temperature being low I have had a difficulty in developing, and was for a long time of opinion that the iodised silver had not received the latent image; but it was suggested to me by Mr. Hadow, that the collodion film was as sensitive at thirty-two degrees as at a higher temperature, if I applied a stronger developing solution.

I used a concentrated solution of sulphate of iron, and found it come out with the faintest gradations. The use of sulphate of iron has, as you know, been applied over and over again, but I determined to try what the proto-acetate of this base would do.

Having satisfied myself that the impression *could* be brought out by the proto-acetate of iron, I determined to proceed and see whether the thing was practically useful. I first tried stereoscopic pictures, sometimes the negative was very intense, at others not. *This* small negative will shew that the half-tone is good. I have brought here a copy of an oil painting which I took in that way; every line is there which is in the original, without overdoing the light parts. We took some anatomical sections, and they were exceedingly intense, requiring no silver; they come up at once; the nerves and arteries were quite distinguished and very sharp.

This is a negative portrait with the proto-acetate of iron. Having found that the acetate of iron was everything I could desire as a substitute for pyrogallic acid, I thought I might simplify it, and it occurred to me that perhaps a solution of acetate of soda would assist. The formula which I wish to call your attention to is twelve grains of sulphate of iron is dissolved in one ounce of water, with about thirty minims of acetic acid; or a drachm and a half of Beaufoy's acetic acid to six drachms of water; then to that I add twelve grains of sulphate of iron, and six grains of acetate of soda, and that will produce a liquid which is soon mixed up and prepared. I hope that many will try it, and that if any improvement can be suggested it will be brought forward.

Mr. ROSLING: I called upon Mr. Hardwich, and he shewed me the negatives to which he has alluded, and I thought them very superior; he also gave me a small quantity of his preparation and a little collodion, and I tried it with a light azalia with dark vegetation, at four o'clock one afternoon, gave it two minutes exposure with half an inch aperture to the lens employed, and that has brought it out very well indeed.

The specimens were handed round.

CHAIRMAN: I am quite sure all present will be delighted with those beautiful negatives.

Mr. SHADBOLT: I think the paper that Mr. Hardwich has brought forward this evening is one that deserves the utmost attention of photographers.

It has generally been the opinion that the film was not so sensitive in cold weather as in warm. The testimony of Mr. Hardwich to the correctness of Mr. Hadow's suggestion is of the greatest importance; the simple question is—how can we avail ourselves of this knowledge? In my experience, I have noticed repeatedly, that in cold weather the developing solution that acted most perfectly in warm weather had not acted so satisfactorily. It occurred to me that it might be probably owing to the large quantity of *restraining* acid; for instance, in using pyrogallic acid we are in the habit of mixing with it a certain portion of acetic acid, the object being to save the whites of the picture from becoming discoloured. Citric acid has also been used frequently for similar purposes, and, occasionally, sulphuric acid.

Finding that my developing solutions were not acting conveniently as the weather got lower in temperature, I reduced the quantity very materially of these acids; in fact, in cold weather I found I was enabled to do with exactly one-fourth of the restraining acid that I required in warm. I first used two grains of pyrogallic acid to one of citric; as the warm weather set in I required exactly as much of the one as the other, but in the cold weather I was enabled to use half a grain of citric to two grains of pyrogallic acid, and got no discoloration. All this tends to confirm the observations of Mr. Hadow and Mr. Hardwich, that if you increase the power of your developing agent, you get out your impression.

One other subject worth attention is this—that to my astonishment I find you can add, in cold weather, a considerable portion of nitrate of silver to a simple solution of pyrogallic acid, without its becoming discoloured for some considerable time. Now sometimes in warm weather a few drops of solution of nitrate of silver will cause it to discolour almost instantaneously.

The SECRETARY: I wish to suggest to photographers present a method to which have recently been paying a little attention, by which I think a photograph of the coming eclipse of the sun can be obtained by anyone present, at a trifling expense and very little trouble.

I have here an ordinary concave spectacle-glass, extremely shallow. Let us suppose that the sun shines perpendicularly on this glass, the greater part of the rays pass through it and are dispersed, but some rays fall on the surfaces and are reflected; the first surface acts as a *concave speculum*, and reflects the rays converging towards the sun—the other surface reflects the rays also and disperses them. If, by roughening this second surface and blackening it, this second reflection is got rid of, we can use the first surface of this glass as a concave reflector, and we can produce the image of any object in the same way as with a reflecting stereoscope. I shall take this glass, roughened on one side, and blackened as before stated, mount it at the end of a long tube, and by that means reflect an image of the sun. Some years ago I had a similar glass with a focus of about five feet, and I think the reflected image of the sun was about half an inch in diameter, quite large enough to see some spots on it beautifully defined, and had I photographic arrangements then, I am certain I could have obtained an excellent photograph of the sun. By using this small reflector, the light and heat are diminished, which, of course, are great advantages where it is almost impossible to reduce the intensity of chemical rays within manageable bounds. By diminishing this glass with black paper to within a quarter of an inch, I have no doubt that an image of the sun can be obtained sufficiently large and sufficiently weakened in chemical energy, to give an image in a tenth or a twentieth of a second; no clock-work would be required; a glass costing only a few pence, an ordinary long box, with an arrangement for letting a ray of sunshine pass down it, and an arrangement for putting the sensitive plate in place of the ground glass, would be all that would be required; it should be adjusted, pointing towards the sun previously, and I should suggest that, some days beforehand, the proper aperture and exposure be tried, in order that when the eclipse does happen, time may not be wasted in finding the proper exposure.

I may state that the surface of this spectacle-glass is ground sufficiently true to give a very good image of the sun; there is no difficulty about the focus: the chemical focus would be also the visual one.

CHAIRMAN: I took occasion to observe, a short time ago, that we were honoured with two distinguished guests, whom I have now the pleasure of seeing before you. It is merely a gratitude to say that science and art belong to no nation, but to all the world, and that this Society will always be ready to accord the most cordial welcome to those gentlemen who may cross the water to visit us.

MONS. LAULERIE addressed the meeting in the French language, expressing his gratification at the very cordial reception he had met with from the members of the Photographic Society at this meeting.

CHAIRMAN:—I think I may assure those gentlemen, on the part of the Photographic Society, that they reciprocate those feelings. Nothing will delight them more than to entertain those *bon rapports* to which allusion has been made.

The Meeting was then resolved into a special one, pursuant to notice, to consider the amendment of the laws of the Society.

Mr. P. LE NEVE FOSTER caused much merriment by the humorous way in which he criticised the draft of the proposed laws, and there was much discussion upon the principles which ought to be adopted in framing the laws.

The discussion, however interesting to members of the Society, would not be so to the general reader, we shall therefore omit it.

Mr. BISHOP moved a reference of the subject to a sub-committee.

Mr. CRACE moved an adjournment to the 16th inst., which was seconded by Mr. SUTTON, and agreed to by the meeting.

The TREASURER stated that the books of the Society were open for the inspection of the members, and volunteered to give any explanation that might be desired.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION

AT the meeting of this Association, on the 24th ult., the following paper "*On the Printing of Positives*," was read by GEO. DAWSON, Esq.:—

It is not my intention this evening to introduce to your notice any new process of positive printing. I have experimented now for some years on many of the most promising published formulæ, and beg to invite discussion on what I consider the best printing process; and thus by comparing our experiences we may be able to advance a step towards the solution of this difficult problem. The baneful effects of some processes still persisted in and recommended by many, I may, before long, notice in a supplementary paper to this, on the subject of the Fading of Positives.

I presume we shall all agree in the general characteristics of a good proof of any negative, viz., all the gradations of light and shade rendered with faithful sharpness, pleasing harmony, and depth of tone, and last, but not least, permenancy. In attaining these desiderata every photographer, by faithfully recording his experience, may do good service. Unfortunately chemistry has hitherto done but little to help us out of this difficulty, so multifarious and subtle are the agents brought into operation. Experience has been our only guide, and, as far as I can see at present, is likely for some time to continue so. A chance discovery may some day give us hold of the thread which is to lead us through this maze of doubt and uncertainty.

In the first place, with regard to the qualities of different specimens of paper, treated exactly in the same way as to salt, nitrate of silver, and subsequent fixing, I find very great differences of sensibility whether albumenised or not. The same difference I remark with their keeping capabilities after excitement and before exposure. Some get discoloured in the dark very soon. These will not, under any treatment, assume the brilliant tone of better keeping papers. To what then can we attribute this? To one of two causes or both combined, viz., the sizing material or the bleaching agent. I can easily understand why the coarse glue used by the English paper makers for sizing, instead of the starch of the French, would have a tendency to induce decomposition very soon after the silver solution has been applied: also the bleaching agent, chloride of lime, if not entirely removed, must, to a certainty, produce very baneful effects. I believe some of the French paper makers now bleach with chlorine gas, and this, I apprehend, must be an advantage, inasmuch as no lime or muriate of lime can be left in the texture of the paper.

What then is the best paper? The thin Canson I used to consider so, but it has now got so uncommonly thin that it will hardly bear a good washing, and moreover, does not seem in other respects to have kept up its quality. The papier Saxe is, I think, preferable to all others, whether it be plain, salted, gelatinised, or albumenised.

For salting it does not seem to make any appreciable difference whether we use the chloride of sodium, ammonium, or barium. The latter, however, must be dissolved in distilled water; about fifteen grains to each ounce of albumen or water is a good proportion for a subsequent ninety-grain nitrate. I may here remark that it is hardly worth one's while to albumenise or salt his own paper, when it can be bought ready prepared with so little comparative addition to the price, unless I may add—for the purpose of experiments.

For exciting I always use a ninety-grain solution of silver. On this the paper should be floated from three to five minutes, according to temperature, and then hung up to dry, taking care to preserve all the drippings, which in a short time amount to a considerable quantity. When the solution becomes discoloured, shake up with a little kaolin, filter, and it is ready for use again. Every photographer, I dare say, has observed that his exciting bath, (although kept up to nearly its original strength,) will, after a time, shew a tendency to dissolve the albumen from the paper. This effect has been attributed by all authorities to the weakened state of the silver. This is not, I apprehend, the real cause. A ten-grain solution will not be found to remove the albumen, while a ninety-grain may. It is, I think, entirely owing to the presence of nitrate of soda or ammonia, gradually accumulating in the solution in consequence of the chemical change effected during excitement. It should also be borne in mind that all albumenised papers are more liable to be thus stripped when damp than when dry. Whenever, therefore, an exciter acquires this property, reserve it for salted or gelatinised paper only.

Collodion negatives should be printed in the shade, particularly if they are feeble. By very slow printing I have seen beautiful prints from the feeblest negatives. Moreover, any speck or scratch in the glass of either the negative or of the printing frame will, in the sunshine, shew a corresponding fault in the proof.

We come now to the great debated question, the best method of fixing. Without entering into the merits of the several plans proposed, I need only mention one which goes far towards fulfilling all the requirements of pleasing—deep and apparently permanent tones, with pure whites.

First, wash the unfixed print in several waters to get rid of the free nitrate, or plunge them for a few minutes into a basin of spring water in which some some salt has been dissolved. This instantly precipitates the whole of the silver on the surface of the paper in the shape of chloride; afterwards wash in plain water. My object in getting rid of the nitrate is to preserve, for a longer time, a good working condition of the fixing bath. I find that the successive doses of nitrate given to this bath by immersing unwashed prints soon render its action very uncertain, inducing a more rapid decomposition and and precipitation of sulphuret of silver, and consequent yellow skies.

Fixing Bath.—Immerse the prints, one by one, and allow them to soak for twenty or thirty minutes in a solution of hypo, eight ounces or more (for there is no limit to its strength) to a pint of water. If kept in a cool place, and not subjected to violent changes of temperature (a point which must be attended to), this bath will serve many times, but whenever it shews any tendency to damage the whites, throw it away and make a new one. Unless on a large scale, any attempt at recovering the waste silver will not be worth the time and trouble bestowed thereon. When removed from the fixing solution, the prints should again be washed in two or three waters for, say, ten minutes, and then placed in the toning bath made thus—

8 oz. hypo
1 quart spring water. Dissolve.
In a twelve oz. bottle dissolve—
Chlor. gold, 15 grs.

Of this add gradually four ounces to the hypo solution, stirring. Let the bath stand for two or three days, and test for acidity. If there be no acid present, add one or two drops of acetic acid, or sufficient to shew a slight reaction on litmus paper after two or three minutes immersion. Very much depends on temperature as to how long will be necessary to produce the required tone. The ordinary stages are thorough red, then purplish brown, up to a deep blue black. Below 40° and with a new bath, this last stage will take many hours, indeed in some cases can hardly be reached by any amount of soaking—up to at least twenty-four hours, the longest trial I have ever indulged in. After a few prints have been toned, or with a higher temperature, this time will be greatly reduced, varying from one to eight or nine hours. It must be borne in mind, however, that, as by this process, the toning property seems to belong entirely to the gold, a fresh supply must occasionally be added; and further, the bath must never be alkaline, nor more than very slightly acid. It should, therefore, be always tested before use. In spite of every care, particularly in warm weather, some sort of decomposition will set in and effectually destroy all toning properties. These, after many experiments, may be restored, but the only safe remedy is to make a new one.

It has been recommended to wash the prints, when they have assumed the desired tone, in a dish placed under a running tap. This plan has a very grave objection. When many prints are thus left to wash themselves (if I may be allowed the expression) they invariably stick together, and prevent the stream of water from penetrating the centre of the mass. I prefer washing in a large dish, with many changes of water, for four or five hours, taking care at each change of water to turn about and separate the pictures well. They may be laid out to dry on sheets of paper, or hung over a string covered with several folds of paper, to prevent any acid or other deleterious substance in the string from getting in contact with the picture.

After the reading of the foregoing paper an animated discussion ensued, in which Mr. Barber remarked that he had found oxide of silver the best and most convenient agent for the decolorisation of a darkened nitrate of silver bath.

The Vice-President differed in opinion with Mr. Dawson as to the glue used in the English papers for a sizing material being injurious, on the contrary, for some purposes very many preferred English papers on that account. With regard to the discoloration in darkness complained of as attaching to some kinds of paper after excitation, it is, perhaps, one of the most objectionable qualities of which photographic papers can be possessed, because, not only does it render it compulsory to use such papers very shortly after excitation, but, as Mr. Dawson justly states, the proofs produced upon them are rarely if ever so brilliant in tone as those capable of being printed upon papers free from this defect.

The Rev. Mr. Winter considered that the advice relative to printing in the shade was worthy of attention.

A desultory conversation then ensued in which Mr. Hislop, Mr. Hill, Mr. Moon, and several others took part, chiefly with regard to the action of the toning bath recommended in the paper, in consequence of an expression of opinion by the Vice-President that after a paper proof had been fixed by hyposulphite of soda, no deposit of gold could take place from a solution of sel d'or, in which condition the gold must be if applied as directed by Mr. Dawson; he contended that if the toning in this bath were effected prior to fixing in the fresh hyposulphite of soda, gold might, and probably would, be deposited; but that Mr. Hardwich had, in his opinion, suggested the true *rationale* of the process, in attributing the gold deposit to a decomposition of the salt by a union of a portion of the sulphur with the silver forming the picture.

Mr. Barber thought that the colour produced controverted this view, colour being an important feature in determining the nature of a chemical deposit, and the tones produced by Mr. Dawson presented too strong a resemblance to those brought about by gold, to allow of our coming to a different conclusion.

Mr. Hislop reminded Mr. Barber of the *number* of tints admitted on all hands as capable of being produced by sulphurisation alone.

After some further conversation the meeting adjourned.

THE SALTS OF IRON AS DEVELOPERS FOR COLLODION NEGATIVES.

By T. F. Hardwich, Esq.

The following interesting paper by Mr. Hardwich, is the one he intended to have read at the last meeting of the London Photographic Society, and the substance of which he communicated verbally. We print it by his permission.

It is a debated point how far the sensitiveness of photographic plates is influenced by temperature; and whether the difficulty of obtaining good pictures in cold weather is due to the fact of the iodide not receiving the invisible impression, or to the reducing agent failing in developing it.

Using the ordinary developing solution of pyrogallic acid—one grain to the ounce of water, with twenty minims of glacial acetic acid, I have found that at a temperature near to the freezing point the negatives are usually wanting in half tone, with an excessive density in the blacks. The darker parts of the object are not well represented, and the general appearance is that of an image taken with a bad collodion or in a bath which is out of order. A longer exposure does not altogether remedy the defect.

Being aware that the *sulphate of iron* is a remarkably energetic developing agent in presence of retarding causes, of which *cold* is undoubtedly one, I exposed a plate for a short period of time, and poured over it a solution of this salt, rather concentrated: a perfect picture came out, exhibiting the faintest details. Hence it was evident that in the previous experiments the iodide had undergone the usual modification, but that the reduction of the silver had been incomplete.

Sulphate of iron has at various times been recommended as a developer for negatives, but on account of the uncertainty in the manufacture of collodion, it has not invariably given successful results. On this head we have now more accurate knowledge. When sulphate of iron is to be used, the collodion should be of a nature to give a vigorous image, and this kind may be prepared by making the pyroxyline at a high temperature, and with acids containing a large quantity of oil of vitriol and water.

The characteristics of the negative image produced by sulphate of iron are that it is extremely good in the gradation of tones, but with less contrast than usual. The general effect is soft, and when viewed in the stereoscope, it is free from that appearance which suggests to some the idea of the objects represented having been previously dusted over with flour or chalk. This defect results from an excess of intensity in certain parts of the negative, favoured by the employment of lenses of short focus and large aperture, and it is best overcome by using a different developing solution. The correction, however, will at times go too far, the iron salt producing a silvery image which admits the passage of transmitted light too freely. In such a case it is desirable to commence by applying the iron developer until the image is well out in all its parts, and then, after proper washing with water, to finish with a mixture of pyrogallic acid and nitrate of silver. Under this treatment the image quickly darkens, and will reach any amount of opacity, the additional deposit of silver being more easily produced by the organic substance, although the inorganic salt is best for developing the feeble radiations on the iodide.

On large plates, and with lenses of longer focus, I did not succeed with the sulphate of iron. Skies, instead of coming out first pale red, and then blackening up to complete opacity, developed grey and metallic. No continuance of the action, either with the sulphate or pyrogallic acid, would precipitate fresh silver upon this image, and, in consequence, the resulting picture had the appearance of one taken in an extremely feeble light.

To obtain an increase of intensity on large plates, I had recourse to the proto-acetate of iron recommended by Mr. Hadow, and can speak very favourably of its powers in rendering the shadows distinctly. I exhibit two negatives of anatomical dissections, taken in a bath at 40° Fahrenheit. The colour is a rich black, and the nerves and arteries are clearly shewn. It would not be easy to say by looking at the pictures how they were developed.

I have used the acetate of iron, also, in copying prints and other similar purposes, and am persuaded that it will be found an agent of great value as an occasional substitute for pyrogallic acid. The formula is as follows:—

Sulphate of iron	12 grains.
Acetate lead	12 "
Beaufoy's acetic acid	1½ drachm.
Water	1 ounce.

Dissolve the acetate of lead and the acetic acid in one-half of the water, and the sulphate of iron in the other half. Mix, allow ten minutes to settle, and filter from the white precipitate of sulphate of lead.

In order to save the trouble of filtering, I propose to substitute acetate of soda for the acetate of lead in the above formula. The result is no doubt different chemically, but the photographic effect appears to be similar. The intensity is certainly somewhat less, but yet greater than that given by the sulphate of iron above. Take of

Sulphate of iron	12 grains.
Acetate of soda	6 "
Beaufoy's acetic acid	1½ drachm.
Water	6½ "

Acetate of soda may be obtained at any operative chemists, in pure white crystals, and should be quite free from chloride. The large proportion of acetic acid in the formula is necessary to make the clear open flow upon the film, and to prevent it from quickly discolouring the nitrate of silver.

As a specimen of the quality of negative produced by this developer, I exhibit a copy of an oil painting. All the colours are represented, even the darkest, and the detail in the lighter portions is not lost. To have taken the same picture with pyrogallic acid, it would have been essential to have operated in a room heated artificially.

I may remark, that in developing with the salts of iron, it is not advisable to keep the solution upon the film longer than is really required, lest a deposit should take place upon the shadows. Diffused light in the camera or developing room, in quantity so small as not to be detected by pyrogallic acid, would also produce fogging. Care must be taken in distributing the solution, or it will act unevenly upon the plate. If the temperature of the atmosphere rises, the developer may discolour rapidly when applied to the film, and will require in such a case to be freely diluted with water.

The following translation of a paper by M. NIEPCE DE SAINT VICTOR, is from *La Lumière*, of the 6th instant, and contains matter of the highest interest :—

ON A NEW ACTION OF LIGHT.

THERE are two methods of demonstrating the new action exercised by light upon bodies which have been influenced by it. The first, which I have described in a previous communication, consists in exposing to the rays of the sun, or even to diffused daylight, any design—an engraving for example—which is afterwards applied to a sheet of sensitive paper, prepared with chloride of silver.

The second, which I am about to describe, is still more conclusive. Take a sheet of paper which has hitherto remained in darkness, or which has not been exposed to the light, cover it with a glass negative photograph, or even with a paper negative; expose it to the direct solar rays for a duration of time, more or less prolonged according to the intensity of the light; remove it to a dark chamber, take off the negative which covers it, and treat it with a solution of nitrate of silver. In a short time an impression is developed, which becomes permanently fixed by simply washing copiously in pure water.

If it be desired to obtain an impression more rapid in developing, and more vigorous, the sheet of paper is to be previously impregnated with a substance which is sensitive in a higher degree to the peculiar action of light, treated of in this communication, the action of "*emmagasinement*," (accumulation or storage?) if I may thus express the persisting luminous activity. An aqueous solution of nitrate of uranium is a substance of the kind described, and may be obtained either by treating oxide of uranium by dilute nitric acid, or by dissolving crystals of nitrate of uranium in water.

The sheet of paper should be impregnated with the salt of uranium in sufficient quantity to colour it of a distinct straw colour, and should be carefully dried in, in perfect darkness. When it is desired to experiment with it, it is to be covered with a negative and exposed to the sun for about a quarter of an hour, then remove it to a dark place, treat it with a solution of nitrate of silver, when an extremely vigorous positive image will immediately be seen to appear, having the chestnut hue of ordinary proofs; in order to fix it, it is sufficient to immerse it in pure water, which dissolves out all that portion of the uranium salt which, protected by the dark parts of the negative, has not received the luminous action, and the image is consequently fixed.

If, after having well rinsed the proof in pure water, it is desired to change it to a black tone, it is only necessary to submit it to the action of acid chloride of gold. Or the same result may be obtained in the following manner: the proof is to be placed in a solution of bichloride of mercury immediately after its exposure to the light, and allowed to remain only a few minutes, but more or less, according to the time of exposure, which ought to be three times as long as in the former case, that is when it is changed by means of the chloride of gold. It is then to be rinsed in pure water, and submitted to the action of a solution of nitrate of silver, in which it is to be allowed to remain until the impression is entirely developed, with beautiful ebony black tones; finally, it is again rinsed in order to fix it.

If, after the *insolation* or exposure to the light, an acid solution of chloride of gold as a developing agent, be substituted for that of nitrate of silver, an image of an intense blue colour instantly appears, which is similarly fixed by merely washing in pure water.

One can also obtain proofs to act as negatives, by placing in the camera a sheet of paper impregnated with nitrate of silver; but at present this process is very slow, and it will only serve to take views of objects in perfect repose.

Photographs obtained in the manner just described, with the salt of uranium combined with the salt of gold, silver, or mercury, *resist, without being obliterated, the energetic action of a boiling solution of cyanide of potassium*, "aqua regia," (a mixture of hydrochloric and nitric acids, ED.) alone affecting them. All these facts give rise to the hope that they are much more staple than photographs produced by the processes at present in use; and that this new mode of printing positive impressions, simple and rapid as it is, is the solution of the important problem of the absolute fixation of photographic impressions.

The solution of nitrate of uranium may be replaced by a simple solution of tartaric acid; the image will still be developed by treating the *insolated* paper with a solution of nitrate of silver, but more slowly, unless assisted by the action of heat to the extent of from 30° to 40°, (this must be of the centigrade thermometer, and consequently equal to about from 86° to 104° of Fahrenheit). The elevation of temperature, *useful* only when a salt of silver is the developing agent, becomes absolutely necessary when a salt of gold is used instead. The heat in this case takes the place of the exciting silver, and partakes this property with other material agents, moisture for example, as we shall shortly see.

A design traced on a sheet of cardboard by means of a solution of nitrate of uranium or of tartaric acid, exposed to the light, or *insolated* and applied in contact with a sheet of sensitive paper, impresses its image, and that an image much more intense than when the design was traced, as in my former experiments, with sulphate of quinine. I believe I may even affirm.

after numerous new experiments, that if with the sulphate of quinine I have obtained images somewhat intense, it is when I have operated with the sulphate dissolved in tartaric acid; for if we work with a solution of quinine in nitric or sulphuric acids, the impressions obtained are weak or superficial.

If the design traced with the solution of uranium or of tartaric acid be with thick lines, it will re-produce itself upon the sensitive paper when not in actual contact therewith, especially if the temperature be somewhat elevated. The following experiments will shew the great influence exercised by heat.

When both the cardboard bearing the design and the paper made sensitive by chloride of silver have been entirely covered by a metal plate heated to 50° (of the centigrade = 122° Fahrenheit), I have seen the image appear in a few minutes, whilst it would have been necessary to wait two or three hours if the temperature had been at zero, (freezing Fahr.) in order to allow of a faint impression commencing, and four and twenty hours or more in order to obtain the maximum of action. I have taken two pieces of the same sensitive paper, and have placed one upon a metal plate heated to about 60° (140° Fahr.), the other on a slab of marble at zero (freezing), and I have seen, under the same conditions of light, the portion placed upon the heated plate blacken much more rapidly than that upon the marble.

I have repeated, with papers or cards impregnated with uranium or tartaric acid, my former experiments on the *storage* of light in tubes, and have obtained considerably more striking results, *particularly with the tartaric acid*, which reduces the salts of gold or silver less easily than does the uranium solution, but which gives out a stronger radiation.

I expose to the light a sheet of cardboard very strongly impregnated with two or three coatings of a solution of tartaric acid, or of a salt of uranium; after *insolation*, I line with it the interior of a long and narrow tin tube, close it hermetically, and I affirm that after the lapse of a very long time the card will impress the sensitive chloride of silver paper as on the first day.

At the temperature of the surrounding atmosphere, it requires twenty-four hours to produce the maximum effect; but if after having projected into the tube some drops of water, in order to moisten slightly the sheet of cardboard, we close it, and expose it to a temperature of from 40° to 50° (120° to 140° Fahr.), we open it and apply the mouth to the sheet of sensitive paper, a few minutes suffice to obtain a circular image of the opening, as vigorous as if the sensitive paper had been exposed to the sun.

The experiment will only succeed once; that is to say, that the light appears to escape *entirely* from the cardboard, and in order to obtain a second image, it is requisite to begin anew at the *insolation*.

Errata.—In number 4, Vol. II. New Series, of this *Journal*, at page 46, second column, for ·007, read 0·07, and for ·003, read 0·03.

CORRESPONDENCE.

ON THE PRODUCTION OF BRILLIANT POSITIVES ON GLASS.

In the following communication, solicited in consequence of an enquiry, vol. 2, N. S., p. 66, from a correspondent (Mr. William Anderson), in our last number, our friend Mr. Jackson has spoken with too much modesty of his own productions, which are of a much higher character than he would lead his readers to suppose; not only are the lights of a good white tone, but they are brilliant in appearance, without possessing that unpleasant glare so general, where any amount of metallic reflection is produced: the metallic appearance of Mr. Jackson's pictures resembles rather that of *frosted* silver, and renders them admirably adapted for stereoscopic subjects.—Ed.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In answer to your request for information as to my method of working in taking positives on glass, I think I cannot do better than give you a brief sketch of my personal experience in that branch of photography, because, as you are well aware, my success has not been so pre-eminent, nor my experience so extended, as to enable me to lay down absolute rules.

When I began to amuse myself with photography, I practised almost exclusively the taking of positives on glass, and for that purpose was using a thick collodion, iodised with iodide of potassium. This, when developed with protosulphate of iron, was very apt to become solarised in the high lights, and to give imperfect half tones.

I then adopted the plan, recommended to me by a friend, of iodising with a mixture of iodide and bromide of cadmium, which gave better half tones, and was much less liable to solarise.

About that time the first edition of *Hardwich's Chemistry of Photography* fell in my way, and I was induced to try his plan of operating with very thin films. This taught me the advantage of a much thinner collodion than that which I had been using; but I also found that, when carried to the extent which he there advised, it produced very faint looking pictures.

The following are the formulæ that I have latterly used, and by which some of my best results have been obtained.

Collodion	one ounce.
Iodide of cadmium	three grains.
Bromide of cadmium	one grain.

The nitrate of silver bath of the usual strength, (thirty grains to the ounce), slightly acidulated with *nitric* acid.

The developer composed of

Protosulphate of iron	fifteen grains.
Dilute nitric acid	half-a-drachm.
Rectified spirits	twenty minims.
Water	one ounce.

The *dilute* nitric acid is kept by druggists for the convenience of dispensing, and consists of three *measures* of acid, of s.g. 1·42, and seventeen *measures* of water; consequently containing fifteen per cent. of the strong acid. The quantity added to the developer admits of considerable variation. The proportion above-named gives a good white tone in the lights, with a slight metallic lustre; but if this should be objectionable, twenty minims to the ounce had better be substituted for thirty.

I used to add to the above ten grains of nitrate of potassa, which probably converts *a portion* of the sulphate into nitrate of iron, but I am not satisfied at it produces any advantage. I am also uncer-in whether the bromide of cadmium is of any ervice.

For fixing I use cyanide of potassium, five grains the ounce of water.

I have occasionally been annoyed by what is tech-ically called fogging, occurring generally in hot eather. In one instance I found a remedy by adding the collodion a drop or two of weak solution of odine in alcohol, and in another instance the same enefit was obtained by rendering the bath a little ore acid. During the very hot weather of last ly neither of these remedies were effectual, and I all feel obliged to any of your correspondents who n suggest the means of obviating this evil.

Yours very truly,
GEORGE JACKSON.
London, March 2nd, 1858.

VARNISH FOR POSITIVES, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—You mention in the *Journal*, Feb. 1st, little American work on the positive process, en-tled "The Ambrotype," by Mr. Seely.

1. Would you be kind enough to say where I ould be able to procure a copy?

2. I wrote you some months since to ask if you ould inform me how the Americans mounted their lass, mat, and picture, to keep the positive from r, and free from dust, &c.; for, if they are not emented at the edges with either paper or some-ing else, dust is sure to get in, no matter how ose the preserver fits.

You replied at the bottom of the page of the *ournal* for August 1st, 1857 (No. 15), and said you xpected an American gentleman over here, and ou would then examine the mounting or cementing some fine positives he would bring with him.

If you would please give me full particulars as to ow they were cemented, &c., I shall be obliged.

3. You will also favour me if you can inform me here I could procure a good, clear, hard, crystal arnish for positives, free from specks and bits of oating particles.

I have tried varnish sold by many first-class ouses, and am still plagued with these troublesome truders. The American ambrotype varnish is ood in all other respects, as is also Gaudin's, but ey are, like the others, full of little particles; and, owever good a picture you have got, you are never re, till the varnishing process is over, that it will e worth keeping.

4. I have tried filtering the varnish two or three mes through filtering paper, but this does not seem do it much good.

If, therefore, you, or any of your kind correspon-ents, can suggest a plan for removing this evil, or n say where I shall procure varnish that is en-rely free from specks, I shall take it as a great vour. Remaining, dear sir,

Yours, very respectfully,
PHILO-PHOTO.

[1. We do not know where the work quoted is ublished, except that it comes from America; there re, however, several publishing houses in London ho deal almost exclusively in American books, mongst them Trübner, in Paternoster-row: try ere. 2. The note alluded to was by our prede-essor, consequently, if the information required as obtained by him, we are ignorant of it. We ave been asked for advice upon this point before, nd then recommended the use of slips of paper emented by means of the common *India rubber olution*, applied to them by means of a paper knife thin slip of wood much as you would spread butter, but having as thin a coating as possible. As we have never heard any subsequent complaints we presume the remedy was efficacious. The India rubber solution is sold in small tin boxes by all dealers in waterproof materials, at about 1s. each box, containing about a quarter of a pint. 3. We prefer varnishing positives by the application, *before drying* the collodion, of a mixture of equal parts of water and white of egg, previously filtered through clean sponge. It should be drained well for about one minute, then dried by the application of gentle heat, in a horizontal position. Gaudin's varnish we have found good, as also a solution of gum dammar in benzole, sold by many dealers under the name of crystal varnish. 4. All varnishes after being used several times would require to be filtered; but this should be done through glass, or sand well cleaned, or what would answer equally well, we believe, through sponge in a bent tube, as recommended by Mr. Crookes. The paper itself as used by you would be sure to furnish floating particles, even if the varnish were free from them previously.—Ed.]

NEW VARNISH FOR COLLODION POSITIVES, GIVING FACILITIES FOR COLOURING, SUNDRY REMARKS UPON COLLODION, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have often seen in your columns enquiries for a good method of colouring collodion positives, and also several methods for producing the same, which are all more or less troublesome and require some considerable time to do nicely. I have been in the habit of using a solution over the varnish for the purpose of making the powder colours adhere; but I have now succeeded in producing a spirit varnish at about three pence per ounce, which only requires the plate to be very slightly warmed, before pouring on, and then, on holding to the fire, it dries in three or four seconds, leaving a brilliant surface which much improves the tone of the picture and preserves the whites. It appears to dry hard like other varnish, but it leaves a surface sufficiently adhesive to receive the colours when rubbed on with a sable brush; if, however, any colour rolls over the picture it does not adhere, only when worked on with the brush. Any kind of sky, or shaded background with drapery may be easily worked on with success by most photographers, though not artists. Any depth of colour may be applied, from a slight tint to a decided colour, by putting more colour on and applying more pressure.

I enclose you a picture on enamelled iron, which was taken last summer, and has been lying about unvarnished ever since. This I have now varnished and coloured for your inspection and opinion; it took me eight minutes to colour the sky, drapery, and flesh as you see, and I think you will agree with me that it is a very expeditious and pretty style. Of course larger pictures can be got up much better, when a little more time is bestowed on them.

Perhaps you will be kind enough to give me your opinion of the quality of the collodion with which the enclosed is taken, bearing in mind that pictures on the iron are never quite so brilliant as on glass. I noticed in the last *Journal* there was mention made that the same collodion is not equally adapted to the positive and negative processes. I have been in the habit of using the collodion that the enclosed picture was taken with for both purposes, and only give a very little longer exposure for a negative than a positive, say if a positive takes ten seconds, give twelve for a negative, and I can with ease and certainty get as great intensity as desired by developing with a different solution to that which I use for positives. I do not strengthen the picture after being once developed, as by that means you get the high lights too intense and the shades too transparent. I have obtained the most vigorous toned prints, well defined in the half tones, *in every way equal* to those obtained by the best negative collodions, many of which I have tried, and none have I found to equal Thomas's xylo-iodide, which certainly gives fine intense negatives, the only thing against negative collodion being its requiring so long exposure, especially if it has been iodised some length of time. The collodion I use is rather thin, and gives a bluish white film after immersion in the bath instead of the creamy films usual for negatives, and likewise keeps any time ready iodised for use without losing its sensitiveness, which is a desideratum. I shall be happy to send you my method of producing transparent pictures for the stereoscope, magic lantern, &c., which are effected by a few seconds' exposure to gas light, if you would think it would be acceptable to your readers.

Apologising for encroaching on your space,
Believe me, dear Sir,
Yours faithfully,
ARTHUR MADDISON.

Huntingdon, March 7, 1858.

[Our corespondent has omitted to state the composition of the varnish recommended. The picture sent (a positive collodion coloured likeness) is certainly very pleasing in appearance, but we should imagine that the colouring is performed by a very practised hand, as it interferes less with the photography than any other we have seen.

It would be impossible to give an opinion of *any value*, relative to the collodion, from an inspection of a picture only, as good results are not unfrequently obtained by skilful workmen, in spite of the inferiority of their tools; we can only say that the picture sent is very nice, the shadows clean, the half-tones delicate, the transparency of the veil especially marked, and the only part that ought to be absolutely white is *very white*; if this be not in consequence of any assistance from colour laid on, it is extremely good. Here again we must remind our correspondent that the composition of his collodion has not been described, consequently it is impossible to test the assertions made relative to its use both for positives and negatives with equal advantage—a point upon which we are somewhat sceptical, the more especially from the remarks made relative to intensifying after development. As described by Mr. Maddison the effects he alludes to are owing to *under-exposure*, in our opinion; but we shall be most happy to be able to recant, for a collodion possessing the qualities imagined would be a boon to photographers on many accounts. We shall be obliged by the communications offered.—Ed.]

REMEDY FOR GELATINOUS COLLODION, AND WORKING WITH LARGE PLATES IN THE FIELD.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Last June I made some collodion, (about forty ounces, it is still quite colourless, iodised with cadmium), at which time it gave me good negatives; but not having an opportunity of using it till the other day, I tried it in a perfectly neutral bath, and got only a very dense deposit on the high lights, no half tones, no tendency to fog, just the same as too much nitric acid in the bath. I also find it very difficult to coat the large plates (15 in. by 12) I am using. It is too thick at the edges, and does not flow quickly enough to give an even coating. Is cadmium the proper agent for iodising for large plates? A hint or two on coating large plates would be very acceptable. I am about purchasing a tent, shall I be able to work this size plate with success? One has a perfect horror of the dust and specks which I fear will result.

What exposure for wet collodion, twenty inches Ross, half inch stop, in sunshine and shade for landscapes?

By your answering the above, I shall esteem it as a very great favour. B. H.

[Iodide of cadmium alone has a tendency to cause a gelatinous condition of the collodions, unless the pyroxyline is made with acids at a very elevated temperature, and even then it only palliates the evil. When collodion is thick, and especially if it be in the condition indicated, we have found the addition of chloroform materially assists the fluidity, as well as improves the half tones. Your collodion has also probably become somewhat more dense from the evaporation of a portion of the ether. We therefore recommend you to proceed as follows, viz., pour off the collodion into a clean dry bottle, leaving the deposit that is almost sure to have formed in the bottom of the old bottle. Into another bottle put alcohol saturated with *iodide of potassium*, to which add an equal bulk of ether, and allow any deposit to subside; pour off the clear liquid, and to seven drams add one drachm of chloroform. Now to about six drachms of your collodion add two drachms of the above-mentioned mixture. It is possible that a portion of the pyroxyline may be precipitated in a form resembling jelly, but if shaken up will again dissolve. If on trial it be found too thick still, add more of the diluting mixture; if the lights are now too transparent, use less of it, or add more of the original collodion. For working in the field under a tent, we advise that you carry out as many two ounce bottles with wide mouths, (capable of being closed with new *wine corks*, not stoppers), as the plates you wish to cover. See that your bottles are thoroughly clean and dry, fill them from your stock bottle *quite full*, so as to have no bubble of air when the cork is inserted, and do not pour from the same bottle twice; the remains may be returned to the stock bottle on reaching home. For the sized plates you name, the whole two ounces of collodion may be turned out *at once* on to the middle of your plate, as quickly as you can manage it, then allow it to flow without delay towards each corner in succession, and drain as usual. The object of filling the bottles completely is to avoid the formation of bubbles from shaking up in transport, and thus allowing of the whole being at once shot out in a heap as it were. Should you find that two ounces are not sufficient for your plates to be readily covered, use three or four ounce bottles instead, and proceed as previously directed. The quantity required differs according to the nature of the collodion, and still more with regard to the manual dexterity of the operator. There is a most admirable instrument made for the purpose of holding firmly the glass plates while performing the various manipulations, a pneumatic plate holder, with a lever that can be fixed in position when the *sucker* is tense. You will find it invaluable. The aperture you name, half-inch, for a lens of twenty inch focus, is small, unless there is a material difference of distance between the back and foreground of your subjects, you may readily use a three-quarter or even a one-inch aperture without detriment. We should judge that, with the latter, an exposure in bright weather would be about one minute, which would be equivalent to *four minutes* with a half-inch opening. In dull weather you will probably find at least double this exposure requisite, but, of course, much depends upon the time of year, hour of the day, condition of chemicals, &c. We shall be glad to hear the result of your labours.—Ed.]

The Liverpool & Manchester Photographic Journal.

New Series. No. 7, Vol. II.—APRIL 1, 1858.

The highly interesting and important discoveries of M. Niépce de St. Victor, of which we gave an account in our last number, are calculated to produce quite a revolution in our methods of photographic printing; but apart from the utilitarian principles involved, the scientific ones are peculiarly worthy of note. Fancy a well-stocked cellar of "fine old bottled sunshine," to be rendered available upon printing emergencies in foggy November weather; yet, ludicrous as this idea appears, its *possibility* is now beyond question. We do not mean to assert that it is likely to be taken up as a commercial speculation, but we venture to predict that it will ere long be made use of for demonstrations at the lecture table.

There seems to be at the present moment a tendency to abandon the use of pyrogallic acid as a developing agent, in favour of the proto-salts of iron, which have now been brought more under control than was formerly the case; and in another column we give a formula for the use of gallic acid with nitrate of lead, which, if the report is to be depended upon, bids fair to supersede either. We have tested the formula given in Mr. Hardwich's paper, and can speak in high terms as to its possessing all the good qualities claimed for it.

The sub-committee of the French Photographic Society appointed to examine the orthoscopic lenses of M. Voigtlander, have issued their report, and contrary to our expectations, this is decidedly favourable. The committee consisted of Messrs. Leon Foucault, Bayard, and Bertsch; and although on reading their report, we are by no means satisfied as to the soundness of the deductions, even from the premises set forth by these gentlemen: we now feel it incumbent upon us to examine these lenses with care, both for our own and for our readers' information, and this we shall be able to do by the courtesy of Messrs. Knight, of Foster Lane, Cheapside, the London agents for M. Voigtlander. We cannot at present reconcile our notions to the idea to that of using a lens of *deep curvature*, and therefore with a super-abundance of spherical aberration, merely for the purpose of correcting the error by the addition of a negative combination to lengthen the focus. The case is not at all analagous to that of chromatic aberration; and we cannot help thinking if four lenses are to be used instead of two, that it would be more advisable to have two pair of positive compounds, of shallow curvature, thereby reducing the spherical error, than that adopted for the so-called orthoscopic lenses. We shall, however, carefully test them, and should we find them in any way superior to those in ordinary use, will not for an instant hesitate to admit that our anticipations have been erroneous.

A communication by Messrs. Davanne and Girard, on the influence of various kinds of paper upon the resulting positive photograph, concludes with this general summary, viz.: "That in the preparation of photographic proofs, the *sizing* is the cause of the diversity of colours presented, and it acts rather by its abundance than by its nature in producing clear and brilliant tones, due to the formation of a combination of metallic silver with organic matter. It does not affect the rapidity of its impressionability. The thickness of the paper only influences the result by the quantity of the size and the facility of manipulation; and that the artificial polish produced by rollers does not add to the sharpness." In another part are the following remarks:—"Paper without size produces grey and flat pictures; that sized with gelatine gives rise to reddish purple tones; while that with starch produces the orange reds."

It is somewhat remarkable, that while these same gentlemen, on a former occasion, maintained that the photographic image upon paper was due to *metallic silver alone*: by the above quotation, it is clear that they have at length arrived at the conclusion promulgated by Mr. Hardwich some eighteen months ago, viz., that the photographic image is due to a combination of the metal with organic matter.

We have been informed, that at a meeting held at the rooms of the Society of Arts, to devise measures for procuring a more distinct legal recognition of the rights of artists and others in the copyright of their works, in which photographers were invited to bear a part, an attempt was made by the non-photographic section to *exclude* works produced by aid of the camera, and that finally a compromise was agreed to, excluding the word camera, but using the phrase "pictures, however produced," or words equivalent thereto. Such is the affection entertained by the anti-photographic artists for their brethren of the camera. This is an illustration of the old saying—"save me from my friends."

We have been accused of entertaining strong opinions, and we do not intend to gainsay the statement: one of them is, that if photographers deem further legislation in their behalf a necessity, or even an advantage, it would be quite as well to seek for it without troubling themselves about those who look down upon photography as something purely mechanical. We have a notion that photographers can better do without artists, than artists can do without photographers.

We were the other day forcibly reminded of a point that we have long advocated, but never before published, and we may, therefore, as well do so now. We had offered to us, for purchase, a beautifully constructed camera, of fine Spanish mahogany, which the owner was desirous of parting with, for the simple reason that it was too heavy for him; there was nothing amiss with it but the failing quoted. But like the lady's first of nineteen reasons against accepting an offer of marriage (viz., that she was already married), it settled the question at once. Photographers are far too fond of brass and French polish and leather cases. We strongly advise our brother operators to leave all these follies for dabblers in the science. Let us have cameras of common Honduras mahogany, or even of milled-board (deal is too hygrometric, or we should prefer that wood); lenses mounted in turned wood or "papier machée," and deal tripods. We want no packing cases, as our cameras can be made to contain all our paraphernalia. We shall recur to this subject again.

The anxiously-looked for eclipse of the sun on the 15th ult., while presenting nothing but blank disappointment to a whole host of both astronomers and phototraphers, hundreds of whom had travelled many miles and made elaborate preparations for recording the phenomena to be observed of the various phases, was to some favoured few an occasion of triumphant success. The brilliancy of the early morning, in the neighbourhood of London, set every one on the alert; but alas! we had an illustration of Moore's lines,

> "All that's bright must fade,
> The brightest still the fleetest;"

for by eleven o'clock heavy masses of dark clouds began to obscure the face of the heavens, and by twelve there was nothing visible but one uniform veil of dark grey. An astronomical friend had kindly placed his observatory, containing a good equatorial, at our service, but we had but a passing glimpse for a few seconds, on two separate occasions, not of sufficient duration to put the telescope upon the object, much less to focus. But although there were but few who had even a chance of success, out of that few there were one or two who have made such excellent use of their opportunities that very important results have been secured. Mr. Josiah Fedarb, of Dover, without entering into the details of manipulation, relates some curious particulars, in a letter published in the *Journal of the London Photographic Society*, which we have thought of sufficient interest to extract entire. We would particularly direct the attention of our readers to one statement made, viz., that the collodion employed by Mr. Fedarb is sufficiently sensitive to the rays from the moon's surface to receive an impression by an instantaneous exposure; we trust that for the benefit of science generally he will communicate the composition of it to the public. In Paris a very signal success was attained by M. Quinet, who, by the courtesy of M. Porro, the Director of the "Institut Technomatique," was allowed the use of one of the largest refracting telescopes in the world, having an objective of about twenty inches in diameter and of fifty feet focus. The plates employed were about nine inches square, and a stock had been ready prepared with dry collodion, upon which an instantaneous exposure was sufficient to produce the required impression. Sixteen perfect images were obtained, the sun's disc being of about six inches in diameter, without any enlargement by the aid of eye-pieces, the images being produced directly in the focus of the object-glass.

We have been favoured by a correspondent, Mr. Emsley, whose letter we publish, with an interesting series of proofs upon paper of the eclipse, taken with a landscape camera, and the size of the sun's image, as compared with the focal length of the lens employed, agrees with remarkable accuracy with that of M. Quinet, in the one case being about one quarter of an inch for a focus of twenty-three inches, in the other of about six inches for a focus of something less than fifty feet.

Mr. John Spencer, of Glasgow, has also sent us a stereoscopic picture of the phenomenon as seen when there was a transient opening in the clouds, the sun's disc being about the size of a pin's head, but is distinctly seen to be about one-third part obscured, and is set in a picturesque framework of rolling masses of vapour. Of course this is intended as an interesting stereoscopic object without any attempt at astronomical excellence. It was produced by Mr. G. W. Wilson, of Aberdeen.

In number five of our present volume are quoted some observations made by Mr. Grove, when lecturing at the Royal Institution, relative to the probable value of photography in *detecting details inappreciable by the eye*, and we are inclined to believe that his predictions are already in course of verification, a circumstance which we regard as highly encouraging as well to photographers as to astronomers.

" *To the Editor of the Photographic Journal.*

Dover, 113, Snargate Street,
March 15, 1858.

"SIR,—In consequence of the letter addressed to photographers by Mr. Forster, published last month, and assuming that gentleman to represent astronomy, I hasten to inform you that I have a complete series of photographic delineations of the beginning, middle and end of the lunar eclipse of last month, and also of the annular eclipse of to-day up to *greatest obscuration*, the whole of the plates being perfect in definition and intensity under deep magnifying power.

If that gentleman chooses to furnish his address, either direct or through your Journal, I shall be happy to present him a proof as soon as complete.

Before the publication of the Number for April, I shall endeavour to furnish a detailed account, if of sufficient importance, of the result of my operations, and in the meantime will simply state that I am making an atlas of the moon's surface, which will cover a very large area, the whole of which is perfect in definition and intensity. These plates, as have all others I have made during the last four years and a half, prove the greater truthfulness of photography over telescopy, except when the latter is unusually and favourably circumstanced. It may also not be out of place to inform our microscopic friends, that the collodion employed is instantaneous to the moon's light, and structureless under a high magnifying power.

There is one other fact of importance in the phenomenon of to-day, viz., that during the first part of the sun's eclipse the moon was edged by a delicate narrow band of prismatic coloured light, commencing on the left (as seen from the earth) with blue, and terminating on the right with the most perfect carmine tint. My plates exhibit this in great perfection; the appearance upon the camera screen under the microscope, which I always employ in focussing for astronomical operations, was truly magnificent. Upon a plate made 45 minutes after the eclipse, the sun's disc is represented as being encircled, *upon its surface*, by a *broad non-luminous band*, not exactly in its centre, and imparting to its circumference, at each extremity of the band, a *concave* outline, such as a soft body would present having a leather strap drawn tightly round it.

During the taking of the first two plates, the sun emitted rays of a pale silvery lustre, very bright, and having definite dark terminations, which have also been impressed with great fidelity; this is probably the 'corona' described by former observers.

JOSIAH FEDARB."

THE HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

ALTHOUH the formal amalgamation of the Liverpool Photographic Society with the Historic Society of Lancashire and Cheshire has not yet taken place, the preliminaries are all satisfactorily arranged, and the union has in reality commenced.

On Thursday evening, the usual meeting of the members of the latter Society, held in the Grand Jury Room, St. George's Hall, was considerably augmented by the presence of a number of the leading members of the late Photographic Society.

P. MACINTYRE, Esq., M.D., having taken the chair, the minutes of the previous meeting were read by the Assistant-Secretary, Mr. Jean, some donations were announced, and a variety of subjects of scientific and literary interest were exhibited. Those relating to photography included, by Mr. Atkinson, a patent American solar camera, the reflex of the sun being received on a looking glass attached to the camera in a horizontal position, and fitted with appliances which enable the operator to place it at such an angle as to transmit the likeness through the lens to the prepared plate.

Mr. FORREST stated that, with the assistance of this camera, they could get impressions life size. It was going to Woolwich on the following day; but, before it was sent, he thought it of sufficient interest to submit to the society. It was a very high class instrument, was the latest new work of the kind out, and its cost, he said, was £20. The camera created much interest.

Mr. FORREST exhibited a new lens, manufactured on Prof. Petzval's principle, by Messrs. Voughl and Fra, Berlin. It was composed, he said, of three glasses, and its peculiarity lay in the preservation of the lines of buildings perfectly straight.

Mr. GLOVER exhibited a stereoscopic view of Dr. Livingstone's steel-built launch, for the exploration of the Zambesi River.

Mr. COREY, one of the vice-presidents of the late Photographic Society, then read a paper on " *The History of Photography.*" In the course of his remarks he commented at some length on the progress of this art, tracing it back to a very early period, yet shewing that though philosophers were fully aware of the action of light on silver at very remote periods, it was not until the present age the arcana by which the pleasing representations that it produces could be prevented from fleeting away almost as rapidly as they were produced. After giving a chronological account of the invention, expatiating on experiments of Sir H. Davy and Mr. Wedgwood, interesting as they were, yet futile until the discovery of Sir John Herschel, on the effect of the hyposulphites in fixing the products of the camera, and awarding their several merits to the labours of M. Daguerre, Mr. Goddard, Mr. R. Hunt, Mr. Fox Talbot, and above all, to Scott Archer; he congratulated his hearers on the utilitarian character the art had assumed by the rapid progress it was making to " record its own reflections," and supported his arguments by some very choice specimens.

Mr. Towson hoped that what remarks he had to urge in connection with photography would not be deemed to savour of egotism. Mr. Robt. Hunt had been mentioned as one of the earliest photographers; but perhaps Mr. Corey was not aware that scarcely a single day elapsed in the year 1838 in which he (Mr. Towson) was not making experiments in concert with Mr. Hunt, while he was also in constant communication with Sir John Herschel and the Honourable Mr. Fox Talbot. At that period, although their experiments were not perfectly satisfactory, they were quite sanguine that the art would arrive at the condition it had since attained; and although he had no idea that they should be able to bring it to a state of perfection, they were still determined to prosecute their experiments until the work got into better hands. Although there was very little he himself had done to be proud of in connection with photography, he had the satisfaction of knowing that he had been instrumental in preventing the success of Mr. Fox Talbot's application for a patent for the glass processes; for, in 1838, he (Mr. Towson) produced a photograph on glass, which is still in existence and which, at the time, was sent by him to Sir John Herschel with the knowledge of Mr. R. Hunt, and was referred to by both as a proof that Mr. Fox Talbot had no claim whatever to an exclusive enjoyment of the privilege of producing photographs on glass. By reference, also, to the *London and Edinburgh Philosophical Magazine* of that period it would be found that the proposition, as to the possibility of taking photographic figures from life, came from him (Mr. Towson).

Mr. Corey was glad of having that opportunity of bearing testimony to the value of Mr. Robert Hunt's experiments, to which he and other photographers of the present day were greatly indebted.

The series of Mr. Frith's beautiful photographic views from Karnac and Thebes were next exhibited on a screen, by means of the oxyhydrogen light, under the able management of Mr. Cassady, of Lime-street, Liverpool: the lamp and apparatus employed having been kindly lent by Messrs. Abraham & Co., of Lord-street.

The Rev. H. H. Higgins, who had travelled in Egypt, explained the views as they were thrown upon the screen, giving little historical accounts, which added greatly to the interest of the exhibition. He bore testimony to the remarkable fidelity of the views, which not only preserved the details, but, as seen by means of this beautiful and wonderful phase of the art, shewed the exact appearance of the stone, which was as white and chaste as if it had just left the chisel of the sculptor. He considered that the facility afforded by photography in its application to dissolving views, which might be shewn on a large scale to a great number of people at once, was one of the most remarkable triumphs of the art. The coloured views which are generally shewn by this process, are extremely beautiful, and convey an excellent impression of the wonderful architectural remains of the East; but they are in no way to be compared with these photographic views of Mr. Frith.

The exhibition excited much interest, and the members of the late Photographic Society received a vote of thanks for the pleasing entertainment they had provided for the members.

The proceedings soon afterwards terminated.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

At the ordinary monthly meeting, held on the 11th March, the Vice-President in the chair, the attention of the members was chiefly occupied with the nomination of officers for the ensuing year.

In consequence of the inability of Mr. Wardley to attend, and the Annual Meeting being held next month, the reading of his paper on the "*Wax Paper Process*," is postponed till the 12th of May.

To suit the convenience of several members, it was resolved that the meetings shall in future be held on the second *Wednesday* in each month, instead of on the Thursday.

It was also resolved that a Soirée, and the Annual Meeting for the election of officers and auditing of accounts, be held in the large room of the Chorlton Town Hall, on Wednesday evening, April 14th, the Chair to be taken at eight o'clock.

The Committee solicit the loan of positive and negative pictures, photographic apparatus, optical instruments, and specimens of chemicals, for exhibition, which may be sent to any member of the Committee, previous to the day of meeting, or to the Chorlton Town Hall, on the afternoon of that day, notice of the intention of Exhibitors being previously transmitted to Mr. W. Hepworth, 48, Ducie Street, Oxford Street, Manchester.

EXHIBITION OF PHOTOGRAPHS AT THE SOUTH KENSINGTON MUSEUM.

SECOND NOTICE.

On Saturday, the 13th ultimo, the Council of the Photographic Society of London gave a *soirée* at the South Kensington Museum, at which the members and their friends were present, together with many distinguished representatives of science and art from the various learned and other societies of the metropolis. The works exhibited and entertainment afforded contributed much gratification, and elicited a large amount of commendation. In addition to the hall in which the photographs were displayed, a very extensive suite of rooms, containing some of the most interesting objects of the collection at the museum, was also thrown open to the visitors, but the photographs were indisputably the centre of attraction.

A day or two before the *soirée* considerable addition was made to the works already there, by the advent of a large additional number, the production of our allies across the channel; and we could not help remarking that, whatever may be the case as regards politics, there was no lack of cordiality of feeling amongst the votaries of our art-science. We regret that, in consequence of the French pictures having been so recently added, they were not included in the catalogue, hence we are unable to notice them so fully as we should have done had this inconvenience been remediable. We consider that both nations may learn something from the comparison.

In portraiture the style prevalent with the French photographers differs very materially from that usually adopted in this country; and there is an effect produced by a happy mode of illumination amongst the former which our artists will do well to study. We allude particularly to an *oblique* light from somewhat *behind* and on one side of the sitter, which gives a breadth of effect and prominence to the figure that is extremely attractive.

There are some well executed microscopic subjects that are considerably above the average of those that have been hitherto generally exhibited; but we have seen some in the possession of those engaged in the pursuit of microscopic investigations in this country that are superior to any that have been publicly displayed. It is a class of subjects not appreciated by the general observer, hence the indisposition to contribute them to our periodical collections.

The landscape subjects of the French collection form a marked contrast to our own. In this branch of the art we consider the English decidedly superior; whilst, to balance this advantage, our neighbours beat us hollow with regard to architectural studies, which, in their hands, are all that can be desired; for, not only are the subjects themselves of a high class, but the selection of the point of view, no less than the manipulation, in most cases reflect the highest credit upon the respective operators. Artificial light is not perhaps favourable for comparing the merits of the different styles of printing, but, so far as we could judge by that light, we are of opinion that the results of our own countrymen in the present exhibition are more pleasing thân are those of our foreign friends.

The French exhibitors shew a good number of psuedo-instantaneous pictures, which, however interesting—and interesting they are—at one glance display the inappropriate character of the designation; inasmuch as there is scarcely a single one that has not a mass of confused and indistinguishable figures. We shall conclude our present remarks upon the foreign works by noticing that Gustave le Gray has contributed another of his marvels of clouds and sea, in which there is so much of wild poetry perceptible. Last year this artist's *Brig upon the Water*, with its *sparkling gleam of sunshine*, was all the rage, and the present production is one in the same style.

Amongst the novelties was a *stereoscopic* picture of the moon, the negative of which was taken by Mr. Crookes, the Secretary of the Society, also a not very noticeable picture, taken at *midnight*, in the arctic regions, by Lord Dufferin. In a separate compartment is a collection of pictures taken by some of the corps of Royal Engineers, principally by Sergeants Mack and Dukes, and Corporals Milliken and Church, which are no less creditable to the producers than to their instructor in the art, Mr. Thurston Thompson. A frame containing some positive portraits on glass (No. 196) of the *Aborigines of South Australia* is one that will claim the attention of the ethnologist. Two frames (No. 318) containing five subjects in Palestine, and No. 326, five subjects in Egypt, by Frank Frith, jun., are admirable specimens in this artist's best manner, and are no less valuable as photographs than interesting on account of the subjects.

No. 324, a group of *Old Chelsea China*, from the Art Treasures' Exhibition, by Francis Bedford, is a splendid specimen of a series by this careful manipulator.

No. 390, *a Ravine in the Lledr Valley, North Wales*, by Roger Fenton, is a fine example of this gentleman's exquisite rendering of the remote distance, a point in which so many operators fail. Nos. 517, 522, 524, and 526, by the same artist, being also scenes in North Wales, are amongst his happiest productions.

Mr. O. G. Rejlander, whose large picture we noticed in our previous article, has several minor works, which are deserving of special attention; for instance, No. 482, *Winter and Summer*, expressed in figures, and the same idea in landscape, proves him to be a poet as well as an artist, in fact, all his contributions bear the impress of thought; there is evidently a purpose in all he does.

Mr. B. B. Turner exhibits several cottage scenes from Talbotype negatives, but we prefer him in his earlier manner, when he was more addicted to country lanes and subjects of a similar class.

Mr. C. Thurston Thompson and Mr. John H. Morgan have both done good service to art in their beautiful illustrations of forest trees, which are not only valuable,—we had almost said invaluable,—as studies, but are exquisite as photographs, and most attractive as pictures. Nos. 496 and 568 are examples of the former, and Nos. 620 and 621 of the latter named gentleman's works.

In conclusion, we would draw attention to a small picture of the Princess Royal and Prince Frederick William of Prussia, which, though presenting nothing remarkable in an artistic point of view, is of great value on account of the striking likenesses of the illustrious originals. It is not included in the catalogue, but will be found on the *edge* of one of the transverse screens, towards the north end of the room.

HINTS FOR THE PRODUCTION OF PANORAMIC NEGATIVES UPON COLLODION.

By the Editor.

In the number of *Photographic Notes*, published on the 15th Feb., is a paper by the Editor upon the construction of a camera intended for the special production of pictures embracing a very extended angle of vision. The idea as regards Daguerreotypes has been for many years practically applied by M. Marten, a French photographer of some eminence, who constructed an instrument with a double combination lens so arranged as to perform a semi-revolution on its optical centre, almost identical in arrangement with that now suggested by the Editor of *Photographic Notes*, who in all probability borrowed that part of his proposed apparatus from M. Marten, together with the diaphragm for exposing a portion only of the plate at a time. We remember having seen M. Marten's instrument in the possession of a friend some half dozen years ago. The novelty, however, proposed by the present author is one of considerable ingenuity, though we fear it is not sufficiently exact to be successful; the difficulties in the way of impressing a collodion film upon glass, being far greater than performing the same operation upon a silvered metallic plate, bent into a semi-cylindrical curve. The contrivance suggested of exposing only a small portion of the plate at a time, that portion being the contact part of a tangent to a circle whose radius is equal to the focal length of the lens, appears to be the most feasible plan of operation upon a plane surface; but as the part exposed, however it may be limited in extent by the diaphragm employed in front of the plate, must still be a portion of a plane surface, it is manifest that the distance between the lens and the lateral portions exposed, and the lens and that in its direct axis must be slightly differing in extent, we fear that the necessary variation as each point comes successively into the axis, and subsequently towards the edge of the exposed part again, will produce an amount of indistinctness that will entirely annihilate the beauty of the hoped for results.

It would be no very easy task to print from a curved glass surface, even if it were possible to coat such a one with a film of collodion and excite it; but if these operations were accomplished, the development of such a plate would present still further difficulties. We have thought much upon this subject, and should only be too glad to find the notion thrown out work satisfactorily, as without any question the advantages gained by the negative being produced direct upon a plane surface would be sufficient to counterbalance almost any amount of trouble previously incurred. Should, however, the test of experiment prove unsatisfactory, we beg to offer the following hint to the gentleman who has already taken up the subject, with a hope that he may not too readily abandon this very praiseworthy attempt to further the interests of photography.

There is no doubt that upon a cylindrical surface, as for instance, upon the curved daguerreotype plate, the definition is sufficiently distinct for all practical purposes, consequently, it is to our means of presenting an excited collodion film in this form that we would direct attention. There is a species of textile fabric (a sort of leather cloth), which has a beautifully smooth and polished surface, used by ladies as a support to muslin when executing a kind of open fancy work for collars, trimmings, &c., and which has already been applied by some photographers as a base for collodion positives, which are capable of transmission by post. Similarly black leather has been employed.

We believe that the *modus operandi* is to attach the fabric employed to a plate of glass at the edges or corners by some adhesive varnish or other material, and then coat with the collodion, as if the glass alone formed the substratum, subsequently exciting and developing as usual. Now we propose that having arranged the focussing, &c. of the camera, we should employ a collodion film as above described, simply removing the pliable material from the glass *previously to exposure*, and arranging it for that purpose in a slide of the requisite form, which could be readily constructed, nor do we imagine that there would be any difficulty as to the transference or subsequent development and fixation.

After completing the operations described, it would be necessary to remove the film from the textile fabric or leather support, if we wish to have the advantage of printing from the negative produced; but if we content ourselves with a positive impression, this operation may be dispensed with,—only that the subjects of a landscape being reversed, as if seen by the aid of a looking-glass, materially detract from its value in our opinion.

What means have we, then, for removing the film so as to use it for printing from? It appears to us that there are two courses open: the first, to make use of paper saturated with varnish, as suggested some years back, and described and demonstrated at the London Photographic Society, by Sir William J. Newton, by which it would be necessary to print through the paper support, and then produce a reversed positive image; or better still, to adopt the plan patented by the late Mr. Frederick Scott Archer, the original inventor of the collodion process, and remove the collodion by means of a thin film of gutta-percha, itself formed by a solution of thin gum in benzole, being poured on to the finished collodion picture in the same manner as the collodion itself was manipulated. In this latter case the gutta-percha is sufficiently thin and transparent to print through with *very* slight reduction of the sharpness. In operating in this manner it would be necessary, before attempting to produce the film of gutta-percha, to attach the whole to a perfectly plane surface as at first; but we see no difficulty in doing so, as the picture must be completely finished and *dried* before it is fit for this operation, which may be performed at any convenient subsequent time.

We can speak practically as to the efficacy of the process for removing the films from the glass plate, and we do not perceive any serious obstacles to prevent our doing so with the fabrics suggested.

ON SOME OF THE OPTICAL PRINCIPLES INVOLVED IN THE CONSTRUCTION OF PHOTOGRAPHIC LENSES.

PART II.

BEFORE entering upon the second part of my paper on the "Chemical Range," I may be permitted to make some observations having reference to the discussion which followed the reading of the first part. It seems the more desirable to do so, as, without a clear conception of what takes place in a single combination, no definite idea can be formed of what occurs in a more complex one.

I object to Mr. Ackland making me to say that "it is quite impossible that there can exist a longer chemical than visual range," not so much on account of the expression being neither strictly correct, nor to be found in any paper, but because it tends to draw attention from that which it was the main object of my paper to prove, viz., that the "chemical range" was definite (or invariable), for a given aperture and focus, and that to assume the contrary involved an optical absurdity.

In reference to Mr. Ackland's statement that what I endeavour to prove "is particularly contradicted by the results of M. Petzval's investigations," I beg to observe that this statement (subsequently repeated in a different form by another party), is incapable of proof, and has been put forward in both instances without even an attempt of the same.

That my paper is, as suggested by another party, "an epitome of all our past ideas," is, I submit, abundantly disproved by the different opinions expressed in the discussion which it elicited. Most willingly I admit that my paper contains nothing not long since known—the truths on which it is founded are as "old as the hills" we photograph; and to those gentlemen personally unknown to me, but not unknown as efficient members of other scientific societies, who have stood up in their defence, and in explanation of my paper, I cannot but feel grateful.

To the photographer I have suggested a practical test, and to the optician a mathematical one, of the soundness of what has been advanced; and anyone (such, for instance, as Mr. Ackland), who has paid during some years considerable attention to the mathematical investigation of the subject, should be able, from a few minutes' consideration of the very simple formula I have given, either to discover it to be in fault, or, failing so to do, be constrained to admit that it contained very strong evidence of my statement being correct.

I now propose to examine shortly the arguments advanced against the definiteness of the "chemical range."

1st objection. *Greater sharpness of the image on the collodion film than on the ground glass.*—This is only as should be expected. The ground glass is much rougher than the collodion film, is, therefore, not capable of affording as distinct an image; add to this, that a lens corrected for actinic rays is under-corrected for the visual image, and, what doubtless plays a more important part, viz., that while the nebulous light of the indistinct image is for the most part seen, that of the actinic image will, in a great measure, remain undeveloped on the film (a circumstance which accounts for some instantaneous pictures being far sharper than could otherwise be expected), and we have ample reason shewn for the collodion picture being sharper than the visual.

2nd objection. *A certain modification of the view-lens, which appears to have caused much labour in its investigation—admitting the use of a large angular field, and having no definite focus, either visual or actinic.*—(A friend, who had previously examined the series of pictures of the French Exposition, transmitted to the Dublin Royal Society a statement that not any portion of these was distinct.) Now the reasons given, in the former case, for the actinic image being more distinct than the visual, will also apply here, though not with equal force. By the way, should it be desired to construct such a lens, it is only necessary to assume a much greater depth of curvature for the first surface, and calculate the remaining curves in accordance. The same number of figures will suffice, and there is no precise limit; but, as we increase the depth of the first surface, we also increase in a high ratio the already large spherical aberration of the lens, until at length it (the lens) ceases to give a tolerably distinct image, even with a small aperture.

3rd objection, viz., *The results of Professor Petzval's investigations in a new photographic lens, and photographs taken by same, as exhibited and described at the last meeting.* Now I trust that nobody will suppose me guilty of an attempt to disparage the powers of this doubtless excellent lens if I say that it cannot do impossibilities. We have already attained (thanks chiefly to the labours of Prof. Petzval) to combinations of four lenses, giving a *nearly* flat field, with large angular aperture and great distinctness; and the addition of two more lenses, though involving some objections, necessarily gives a power of further flattening the field—possibly of making it quite flat.

Now, having carefully noted the data given of this lens, and the description of its performances in the shape of photographs laid before the Society, I find but one instance in which there exists an apparent (not a real) cause for supposing the lens to possess any peculiar powers as to the "chemical range." That instance is the view of the Burgplatz, to which Herr Pretsch calls particular attention, as not to be so produced by any other lens; and the only reason I can see for this assumption, or that of Mr. Ackland, of this lens contradicting my theory in respect of the definiteness of the chemical range, is that there are two objects—one at 300 feet, the other at 150 feet—both rendered distinctly in the photograph.

Now, "distinct" and "indistinct" must, in such cases, be considered as relative terms. Thus, that sharpness of outline which is demanded for fulfilling distinctness in a photograph of two and a half or three inches square (and where a magnifying power is almost invariably used for examining or viewing), can neither be transmitted to paper, nor, if so transmitted, could it be generally appreciated in a picture of sixteen inches square. There is, therefore, a latitude, varying with circumstances, which if kept within, we say that the picture is distinct; and a simple calculation will shew how far the view of the "Burgplatz" presents a difficulty in this respect, supposing the entire aperture of the lens to have been employed.

The first step in the calculation is to find the conjugate foci of the lens for the farther and nearer objects—say for 300 and 150 feet, or 3600 and 1800 inches—the focus of the lens being twenty-six inches.

Let d' represent the greater distance, d'' the lesser, f the sidereal focus, f' the conjugate focus for d', and f'' that of d'; then

$$\frac{1}{f'}=\left(\frac{1}{f}-\frac{1}{d'}\right)=\left(\frac{1}{26}-\frac{1}{3600}\right)=\frac{1}{26{\cdot}19}$$

$$\frac{1}{f''}=\left(\frac{1}{f}-\frac{1}{d''}\right)=\left(\frac{1}{26}-\frac{1}{1800}\right)=\frac{1}{26{\cdot}38}$$

The extreme difference of the foci of the more and less distant objects in the case before us is, therefore, only 19-100ths of an inch; and by adjusting the camera to the mean, that is to say, dividing the indistinctness when focussing, no portion will be 1-10th of an inch out of focus.

We have next to find the measure of the lateral confusion of the image, or rather the diameter of the circle of confusion due to this 1-10th of an inch, for a focus of twenty-six inches and an aperture of three inches, by the formula given in my last paper, viz.,

$$C=\left(A\times\frac{d}{f}\right),$$

$$=\left(3\times\frac{0{\cdot}1}{26}\right)=0{\cdot}0115,$$

or 1-90th of an inch (nearly). That is to say, each pencil of rays, instead of coming to a point on the screen, will be diffused over a space of 1-90th of an inch.

Lastly, to consider the effect of this on the distinctness of the image, let the object be supposed to be the sharp and straight outline of a dark object projected upon a light or sky ground; such an outline is one of the severest tests of distinctness. Let its image be considered as made up of innumerable discs arranged in lines, these discs being as already ascertained, 1-90th of an inch in diameter—the discs up to a certain line will be all bright, immediately beyond that line all dark. This will give the effect of a shaded line, whose entire breadth is 1-90th of an inch, but having one portion of this breadth shading insensibly into the dark, and another into the bright portions of the image to which it is the boundary; while the whole space (being so shaded) cannot be considered as effecting the eye sensibly for more than half its breadth, or say 1-180th of an inch, which quantity is the most which, I apprehend, we can fairly estimate (practically speaking) the visible (?) indistinctness of the images of the more and less distant objects in the view of the Burgplatz, taken with a lens of three inches diameter and twenty-six inches focus.

These observations have taken up so much space, that I defer until the next occasion the proof of the compound lens being equally definite in its focus (visual or actinic) as a single lens of the same focus and aperture.

T. GRUBB, M.R.I.A.

Dublin, Jan. 2nd, 1858.

THE PHOTOGRAPHER'S PHARMACOPŒIA.

*M. De Poilly's Process for Collodion.**

Clean the glass plates by means of elm charcoal reduced to an impalpable powder.

TO MAKE THE PYROXYLINE.

In a wide-mouthed stoppered bottle introduce fifty to sixty cubic centimetres† of sulphuric acid: add, in several portions, eighty grammes of powdered saltpetre (nitrate of potash); then four grammes fine cotton in small quantities at a time. Allow the whole to soak for about ten minutes. Wash in eight or ten changes of water until there is no taste of acidity.

ANOTHER FORMULA FOR THE SAME.

200 grammes sulphuric acid of commerce.

100 ,, pulverised nitrate of potash, in small quantites at a time. Mix well, and add, little by little, five grains of fine cotton very dry. Allow it to soak, and wash as before.

FORMULA FOR PYROXYLINE FROM PAPER, ACCORDING TO MAXWELL LYTE.

Pure sulphuric acid. Pure nitric acid (quantities not given).

Introduce by small portions at a time as much "papier Joseph" as can be covered by the liquid. Allow it to remain for twelve hours, then wash and dry as above.

COLLODION.

Ether at 62° (scale not given.)	105 cubic centimetres	(about $3\frac{3}{4}$ oz.)
Alcohol at 40° ,,	50 ,, ,,	(,, $1\frac{3}{4}$,,)
Pyroxyline	8 decigrammes........	$12\frac{1}{2}$ grs.

Iodise with—

Bottle No. 1......	10 cubic centimetres......	(170 minims.)
,, No. 2......	7 ,, ,, ...	(119 ,,)
,, No. 4......	5 drops.	
,, No. 3, a sufficiency to produce the colour of brandy.		

The bottles alluded to for sensitising the collodion are prepared as follows, viz.:—

BOTTLE NO. 1.

Alcohol at 40°, *saturated* with iodide of potas. 50 cubic centimetres

Then add—

Iodide of ammonium................	1 gramme.
Iodide of zinc	1 ,,
Ether	5 cubic centimetres.

BOTTLE NO. 2.

Alcohol at 40°............	30 cubic centimetres.	
Ether at 60°	40 ,, ,,	
Bromide of ammonium ..	5 decigrammes	(about 8 grains).
Bromide of cadmium	5 ,,	,,
Fluoride of ammonium ..	1 ,,	(about $1\frac{1}{2}$ grains).
Cyanide of potassium	1 ,,	,,

BOTTLE NO. 3.

Saturated tincture of iodine.

BOTTLE NO. 4.

Acetic acid, or prussic acid.

I use bottle No. 1 to iodise my collodion; this ought to be but weakly done, so that in the nitrate of silver bath it should not acquire more than a bluish tint. It is, however, requisite that the film should be capable of giving a picture, but in this state its sensitiveness is not sufficiently great to produce intense results.

I then add, by small portions at a time, some of the solution from bottle No. 2, until I obtain a convenient amount of sensitiveness. At length, in order to cause the proofs to acquire in the dark parts an intensity which they lack, I colour the collodion to a deep brandy colour by means of the solution in bottle No. 3; then I add a few drops from bottle No. 4.

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* The above is a translation of notes furnished by Mr. Richard Foxall.

† A cubic centimetre of water measures about seventeen minims, and *weighs* about fifteen and a-half grains—the same as a gramme; consequently, if for *cubic centimetres* drachms or half drachms by measure be substituted, and for *grammes* drachms or half drachms by weight, the relative proportions will be duly retained.

It always happens that this collodion alters, I then begin again to treat it according to its condition, say with 2, 3, and 4, but rarely with No. 1. This collodion becomes at length so stable that it remains good almost indefinitely. I never find it requisite to reject the old collodion, being able always to restore it either with new collodion, or to render it sensitive with the solutions above-named.

EXCITING BATH.

Distilled water	100 cubic centimetres.
Crystallised nitrate of silver	8 grammes.
Alcohol	10 cubic centimetres.
Sensitised collodion	2 to 3 ,, ,,

Mix and shake up the above several times, allow it to rest for twelve hours and filter. This bath should be always maintained at a strength of from six to eight per cent.

At the same time as the quantity of silver in the bath is diminished by use, an excess of iodide is formed there, the film then becomes wanting in sensitiveness; the defect is remedied as follows, viz.:—

The new bath contains 510 cubic centimetres; as soon as I perceive that it has become weakened, I add a quantity of water sufficient to restore the volume to 510 cubic centimetres. A portion of the liquid having been lost by use the bath becomes cloudy, I filter it immediately in order to free it from the iodide in suspension. I test the strength by means of the aërometer, and add the quantity of nitrate of silver necessary to bring up the strength to eight per cent.

DEVELOPING BATH, NO. 1.

Rain water saturated with whiting	250 cubic centimetres.
Sulphate of iron	60 grammes.
Nitric acid	10 cubic centimetres.
Sulphuric acid	10 ,, ,,
Nitrate of silver	1 gramme.
Sensitised collodion	2 to 3 cubic centimetres.

Shake up several times, filter, then add—

From bottle No. 3	2 cubic centimeters.
,, No. 1	2 ,, ,,
,, No. 2	2 ,, ,,
Liquor ammoniæ	10 drops

Allow it to settle for twenty-four hours, and filter.

DEVELOPER, NO. 2.

Rain water	120 cubic centimetres.
Sulphate of iron	20 grammes.
Sulphuric acid	5 cubic centimetres.
Solution of nitrate of silver at 10 per cent.	4 ,, ,,
Acetic acid	5 ,, ,,

Let it remain twenty-four hours and filter.

Now, in a bottle of sufficient capacity put some ordinary collodion, as prepared for pharmaceutical purposes, and precipitate the cotton by the addition of a sufficient quantity of water, (nine volumes of which are requisite to dissolve completely one of ether,) shake it up carefully, removing the stopper from time to time, and preserve for use. One hundred parts of collodion for 1000 of water had better be used.

Twenty-four hours after your iron developing baths, Nos. 1 and 2, have been made and filtered, pour into each of them some of this etherised water until they present a silky and metallic appearance. Here it is necessary to be careful, for the reaction is so powerful that the bottles run the risk of being broken by explosion.

Take eighty cubic centimetres of bath No. 1, which you mix with bath No. 2 entire, and you will obtain a *perfect* iron bath, provided your operations have been properly conducted.

This bath will keep indefinitely, only it is necessary to restore its action, when weakened, thus:—

When it developes slowly, having become filled with metallic crystals, I restore it by adding several cubic centimetres of a saturated solution of sulphate of iron, then a few drops from bottle No. 1, and a precipitate is formed which I withdraw by filtration.

When the tones obtained are not satisfactory, the defect may be remedied by the addition of etherised water.

FIXING BATH.

Cyanide of potassium	8 to 10 grammes.
Rain water	100 cubic centimetres.
Alcohol	5 ,, ,,
Solution of nitrate of silver (10 per cent)	2 ,, ,,

This bath deteriorates by use and contact with the air, it is, therefore, better to replace it from time to time.

The quantities that I have indicated are those that I think best as starting points. As to the bottles Nos. 2, 3, and 4, the quantities from which to add to the collodion are not indicated, I leave the employment of them in the prescribed formula to the judgment and experience of the operators; they will find in a variation of the doses, a range of tones that they may desire to obtain.

The most brilliant proofs are those obtained by a minimum of exposure; for one prolonged beyond what is requisite injures the whiteness of the lights and the depths of the shadows.

The washings after the iron bath, as well as after the fixing, should be carried to an excess; it is the first condition for obtaining unchangeable proofs. A distinct lustre has shewn me nearly always, that when the proof is dried, the dessication must not be carried on too rapidly, and it is absolutely necessary that it should be perfectly dry before varnishing.

The choice of a varnish is not a matter of indifference, I describe that I generally use:—

Solution of bitumen of Judea in benzine	50 cubic centimetres.
,, ,, ,, in turpentine	50 ,, ,,
Virgin wax	5 grammes.
Indian rubber solution	2 ,,

This varnish dries quickly, and does not scale off.

These constitute the formulæ for my process for pictures called "mother-of-pearl positives;" however, when the proper exposure has been prolonged, it has happened that I have obtained proofs of sufficient intensity to use as negatives. I suspect that the absolute metallic reduction obtained by my iron bath is the principal cause that the molecules of silver are so closely connected that they form a surface impermeable to the light, possessing then the properties of the dark deposit in the negative proofs.

To the nacreous tones of my positive proofs, when transferred to waxed cloth, iridescent reflections are added, producing the best effects.

The above, which was promised insertion in a former number, we now publish, because there are a few useful hints contained in some of the directions given; but we cannot forbear expressing our dissent from the notion conveyed that better effects are to be produced by so heterogenous a compound as the above, than from a much more simple combination. On the contrary, we are convinced that the more simple is the collodion employed, the more uniform are the results likely to prove. We suspect that our correspondent has given a recipe of ancient date, if the mushroom existence of photography upon glass can be regarded as yet having a past age to look back upon. It is the old story: we begin by simplicity,—we increase our complications,—a reaction sets in,—we discard one by one the unnecessary adjuncts, and return again to simplicity,—not necessarily the same as we started with, but a simplicity recommended by experience, and the result of laborious investigation.—Ed.

CORRESPONDENCE.

A CHEAP RECEPTACLE FOR THE NITRATE OF SILVER BATH.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Having noticed several enquiries in the various *Photographic Journals* for information as to the best means of constructing an economical bath for the nitrate of silver solution that is not too readily liable to breakage, percolation, or other ills that baths are heirs to, I beg to offer to the photographic fraternity, my own solution of the problem, after having made numerous experiments to effect the desired object. I may state that I have had in constant use for six months, one that contains *two pounds* of silver salt, and receives a plate eighteen inches by twenty-one inches.

Take a board of Quebec yellow pine, three-quarters of an inch in thickness, and perfectly free from either large or small knots; having planed it perfectly smooth on both sides, cut two slips of the height of the required bath, and one of a length equal to the intended breadth—all three being of one width, which should be equal to the distance desired between the front and back of the bath: these are to form the bottom and two end pieces; now cut the back and front pieces, and *screw* the whole carefully together, fitting them as closely as possible. Having dissolved shell-lac in alcohol to a consistence that will flow moderately well, pour some into the bath, and turn it about in every direction, in order to give it a good internal coating, pour out the superfluous solution, allow it to drain and dry perfectly; repeat this operation several times, until the coating is about a sixteenth of an inch in thickness; then apply a single external coat of the same varnish. Before using, insert a sheet of glass on the side nearest to the operator, for the dipper to slide against, and a slip at the inside of the bottom for it to strike upon in descending: this is to prevent chipping the varnish. I have found this bath a perfect one in every respect, and yet preduced at a comparatively insignificant cost.

Yours very truly, H. J. MAY.

San Francisco, January 19th, 1858.

CLEANING GLASS PLATES & FAULTY LENS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I have been of late very much annoyed with the cleaning of glasses for large negatives. Do what I may my pictures are smeared in the back-ground; it is not for want of care or perseverance, but so they appear. I have used cyanide and tripoli; alcohol, ammonia, whiting. I use diaper cloths well washed without soap, and finish with a piece of muslin. The collodion is Mr. Hardwich's, the bath is fused nitrate with a little acetic acid.

If you can give me any information I shall feel much obliged, for nothing is more annoying to me than to give any person a smeary picture. I have always thought it was carelessness.—I am, sir, yours obediently, M. A. H.

P.S.—If you can point out other faults in the enclosed picture I shall feel much obliged.

[You have not stated what developer you employ. If any of the salts of iron, it is useless to attempt to clean your glasses without the aid of nitric acid after they have been once used. But, under any circumstances, if you are troubled as you describe, we recommend the following mode:—After having removed all extraneous matter from your plates, allow them to soak for some time, say half an hour at least, in dilute nitric acid, one volume of acid to four of water, then on removal from this bath, allow the water from a tap to flow freely over them, and set them to dry spontaneously, by standing on edge in some appropriate rack. Your cloths seem to be judiciously selected. The picture sent is well printed, and the subject easily posed; but there is something amiss with the lens employed, the spherical aberration of which appears to be not properly corrected, as, although the eyes of the sitter are perfectly sharp and distinct, the whole of the outline of the head and figure is indistinct and out of focus. We think, too, that there must be some reflection in the inside of the lens tube, as there is a circular haze of light in the back ground that is offensive to the eye, very different from that thrown purposely behind the head to give prominence in certain cases. We should imagine that the *distance between your front and back combinations* is greater than it ought to be for the diameters of the lenses employed.—Ed.]

PHOTOGRAPHS OF THE ECLIPSE.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Enclosed I send you six photographs of the sun, five of them taken while that body was eclipsed on Monday, the 15th, and one taken after the termination of the eclipse. They were taken by the collodio-albumen process instantaneously, or nearly so. The lens used was a meniscus, about 23 inches focus, with a stop one-sixteenth of an inch.

We had arranged beforehand so that we could put a prepared glass into the camera, and expose it at any time without looking into the camera; this was done by fixing sights upon the camera, so that when the sun was viewed through the sights its image fell nearly upon the centre of the prepared glass. By this arrangement we could expose it at any moment. It was fortunate as it happened that we had made this arrangement, as we could only catch a look at the sun at intervals through the clouds.

View Wortley, Leeds, JOSEPH EMSLEY.
March 19th, 1858.

[The sun's disc in the photographs forwarded by this correspondent is a quarter of an inch in diameter, and in that which was taken after the eclipse shews the spots distinctly. They are all beautifully sharp and well defined, and though small, extremely interesting. The hint as to the means of finding the position without loss of time or re-focussing, is worth attention.—Ed.]

COLOURING GLASS POSITIVES IN OIL.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Will you obligingly answer me the following queries in your next *Journal?*

Does the *collodion positive film* undergo any preparation previous to colouring in oil? If it does, what is the material used?

I am, Sir, your obedient servant,
Cockermouth, T. F. TAYLOR.
March 25th, 1858.

[We publish this in hopes that some correspondent may be able to give the answers. We are not aware of the process adopted, but presume the film should be varnished.—Ed.]

LINES IN COLLODION-HONEY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—I have now been engaged for a length of time in trying to get good negative stereoscopic pictures by coating the sensitive surface of the plate with equal parts of honey and distilled water, (as also loaf sugar and water). I have washed the sensitive surface of the plate in a bath of water and coated it with the preservative solution. I have then put the plate to drain for several hours before placing it in a dark box for exposure. Previously to developing, I have washed off the solution by immersion in the washing bath. I develop with water, 1 ounce; pyrogallic acid, 1½ grain; glacial acetic acid, 30 minims; alcohol, ½ a drachm. I have been tolerably successful, except that I get rectangular lines or streaks. In every plate the collodion separates somewhat in drying, as you will see by the sample pictures I have sent. I have black varnished the greater part of the plate to prevent it showing, but you will find upon the left plate, in the left corner, a patch of these rectangular marks.

I purchased the collodion in Sheffield, and I have found it most exeellent in producing detail as well as density, and I think I could almost take any number of plates out and bring the whole home almost without a failure excepting in these streaks. I have shewn them to the *manufacturer of the collodion*, and he advised me to put two or three drops of chloroform in it, or else two or three drops of water. Does not the chloroform thicken it and make it difficult to flow upon the plate? And does not the water added to it make it soon decompose? I have determined if I cannot get over it with this collodion to try either Bland and Long's or Horne and Thornthwaite's. Please give me your opinion as to which you think is best and most to be relied upon. I have used Thomas's for the wet process, and have got excellent negatives, but do not know whether it would answer for this process.

The manufacturer told me the separation was caused by my using a bath where so many collodions had been put in, and if I had a new bath made by him it would prevent it. I was rather reluctant to purchase a new one, *my old bath containing about fifty ounces*, however I got him to make me a new one according to his own formula, and it was not a jot better than the one I had in use.

I should be much obliged by your answering my remarks in the next No. of your valuable *Journal.*—Yours respectfully, COLLODION.

Sheffield, March 17th, 1858.

[The fault complained of by our correspondent is what is known as *reticulation* of the collodion, resembling the markings on morocco leather. It arises from various causes: too much water in the collodion or too little of it both give a tendency to this annoyance. The advice given *at first* by the maker was good, viz., add some chloroform; you may put as much as ten drops to each ounce without detriment, and instead of thickening it you will find that it renders it *more fluid*. If you examine the film by *reflected* light, just *before* you immerse it in the nitrate bath, you will probably perceive the appearance of this structure; if so, wait a few seconds more before immersing it, and it will most likely disappear. You had better continue with the same collodion you have been using, adding only the chloroform as above. See answer to "Vale Salve" in this number.—ED.]

HONEY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—I am emboldened by your kind and very satisfactory answers to enquiring photographers to request the favour of your furnishing me with the formulæ for your honey process—as to the collodion, bath, honey syrup, and developing solution. A paragraph on this in the *Journal* would be very welcome to many amateurs looking forward to a summer's campaign; and no doubt you have effected improvements in the process to render it worthy an additional notice. A constant subscriber, I would take the liberty also to say that I go to the country early next month, and if you would kindly send me a memo. of the formulæ direct I would feel much obliged.—I am, sir, your obedient servant.

VALE SALVE.

Liverpool, 13th March, 1858.

[It would be quite incompatible with our arrangement to answer correspondents except through the medium of the *Journal*, but in this way our best assistance will be always cheerfully accorded. The collodion we prefer is one that is somewhat old, thick, and which forms an absorbent film, in fact, that which for other purposes is generally regarded as spoiled; the sensitising bath, the ordinary thirty grains of nitrate of silver, saturated with iodide of the same base. If you have to make a new bath we prefer Mr. Hockin's method of adding about a drachm of the iodised collodion, shaking well, allow it to settle, and filter. The honey solution: equal volumes of the liquid portion of the honey and distilled water; stir well, and filter. The filtration is somewhat tedious, and if the syrup be very thick, a little more water may be added, just enough to permit it to pass through the paper. Developing solution: two grains of pyrogallic acid, one ounce of distilled water, and one grain citric acid. Having coated and excited your plate in the ordinary way, drain it well for about a minute, then pour over it a sufficiency of the syrup, beginning along one edge, and causing it to flow in a steady wave towards the opposite side, driving the free nitrate of silver before it; this may be done several times with the same portion of syrup, and continue until there is no tendency to streakiness, then stand on edge to drain; the face of the plate should be towards the wall, resting against a slip of glass, and with one corner down in a porcelain dish, the lower edge being supported over the opposite rim, thus there is an inclination towards one corner. The plate should be left for about a quarter of an hour at least to drain, and may then be removed to the dark frame, or left until convenient. The exposure of plates thus prepared should take place within the next twenty-four hours; if desired to be kept longer, they may after being drained say for five minutes, be again treated as at first with a fresh portion of syrup, and they will then be fit for use for some weeks; but the requisite exposure will be longer than before. If we require plates to be kept for any length of time, we prefer Dr. Norris's dry plates, but if for use the following day, our predilections are in favour of the syrup, especially as we can always *convert* a plate prepared with syrup, if not used when expected, into one of Dr. Norris's by washing off the latter, and pouring on a hot solution of gelatine. The washing may be considered complete when a drop of the water from the plate ceases to have either a metallic or sweet taste. Develop the syruped plate by first immersing in water for an instant, in order to allow the solution to flow without check, which may be poured on as with a fresh plate. When sufficiently intense, wash and fix with *hyposulphite* of soda, *not* cyanide of potassium, and subsequently wash copiously to remove the hyposulphite. If the details are all perfect, but the intensity deficient, this may be increased to almost any extent by another development before drying the plate, only adding a few drops of the nitrate bath before pouring the pyrogallic acid solution on. Lastly, wash well, but no further fixing is necessary.—ED.]

INDISTINCT DRAPERY, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Please to inform me in your next, what is the cause and remedy of want of half-tone in the draperies? The lower part of the picture is entirely black, that is the highest in the camera, and the head and bust are correct. Do you think the arrangement of the light has anything to do with it?

I have a wooden house with windows on each side and skylights; I use blue curtains for the side lights and no curtains for the top. I began my first attempts in a yard surrounded on two sides by houses, and on the other sides by a wall six feet high. I must confess that I have taken better pictures in this yard than in the wooden house.

I wrote to you about five weeks since, and have not seen your answer: the letter may have got mislaid.

Do you not think that the effect which "J. A." admires may be obtained by careful manipulations and clean solutions? I have obtained beautiful backgrounds which have had a slight creamy tinge, and to my thinking they look the best.—Yours, &c.

Bradford, 9th March, 1858. J. B****N.

[The exposure requisite for a portrait in the open air is considerably less than when the sitter is under glass, but where the lower part of the house is of wood or other opaque material, the dress will not come out properly without a much more prolonged exposure. You will probably find it an improvement if you place a blind over your sitter, extending about five or six inches only in front of the face, and allow more light on *one side*. At same time you had better increase the time of exposure. It is not impossible but that your trouble may partly arise from keeping the plate too long in the dark frame before using it after it is made sensitive, as the solution of nitrate of silver drains towards the lower edge of the plate, leaving the upper part half dry, and consequently not so sensitive. This is very apt to occur with a collodion that is particularly shiny when dry; it is a sort that causes the solution to run off as if it were greasy.—Ed.]

PIN HOLES IN NEGATIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Will you, in an early number, explain to me the cause of fine pin-holes in a collodion negative printing black in the positive. The negative was developed with—1½ grains pyrogallic acid, 15 minims acetic acid, 10 minims alcohol, 1 ounce water.

Chester, March 7th, 1858. Yours truly, J. Y.

[The defect complained of may arise from one of several causes, viz.:—1st, if the nitrate of silver bath be not properly saturated with iodide of silver the plate would be partially affected by the dissolving out a portion of the iodide, as soon as produced by the double decomposition. 2nd, particles of matter (oxide of silver for instance,) in suspension in the bath become deposited all over the plate, and in those parts prevent the action of the developer. 3rd, a similar effect would be produced by a discoloured developer from a like cause. 4th, the collodion may be filled with minute bubbles of air, in consequence of having been shaken up, or other causes. *Remedy.*—Leave a plate coated with sensitised collodion in the bath all night; filter the bath into a perfectly clean vessel; see that the dipper is perfectly clean and *dry*, or if moistened, it should be with *distilled* water. Filter your developing solution or make it afresh, omitting the alcohol. The introduction of a small quantity of common water, though of little importance generally, will *occasionally* cause that defect, by the formation of a small quantity of chloride of silver *in fine powder*; this is more apt to be the case where the nitrate of silver bath is an old one, and surcharged with organic matter. The use of the developer after it has become discoloured, either on the plate or before, is also frequently the source of this annoyance.—Ed.]

ANSWERS TO CORRESPONDENTS.

A Young Chemist probably means the *Chemical Gazette*, published by Taylor and Co.; or else the *Quarterly Journal of the Chemical Society*, by Ballière.

F. L. S., Staleybridge.—The proportions of ether and alcohol used by Mr. Jackson are five volumes of the former to three of the latter, in which is dissolved pyroxyline enough to produce a moderately thin film. The exact quantity is not definite, but depends upon the condition of the pyroxyline; about three grains to each ounce of the solvent may be regarded as an average quantity.

Jas. H. Lyons, Manchester.—For collodion, see answer to "F. L. S.," but use four and a-half grains of pyroxyline instead of three grains. For nitrate bath, see answer to "Vale Salve," as also developing solution, adding one drachm of alcohol. If economy is a point, and you are likely to use but a small quantity of collodion, we recommend you to buy it ready made, as in small quantities it does not pay to make it yourself.

A Blunderer.—Your difficulties will soon disappear by a little attention. It is evident from the test paper you enclose that your nitrate bath is far *too acid* for producing good negatives, though it might very probably do well for positives; either make a fresh one, *leaving out the acetic acid* altogether, or neutralise the one you have, by dropping into it a saturated solution of carbonate of soda (common washing soda), until there is a slight white deposit. A bath for negatives should be neutral, or only very slightly acid, not more than enough to change the litmus paper to a light claret colour after soaking in it for ten minutes. Try the developer described in Mr. Hardwich's paper published in our last number. Your printing would also be improved by using (for the paper which you sent), a stronger exciting bath,—say 100 grains to the ounce, or what will do as well, leaving the paper on the solution for a longer time.

An Amateur.—Proto-nitrate of iron may be used instead of the proto-sulphate for developing collodion positives, and *when freshly made*, it produces very brilliant effects. The solution, however, soon spoils by exposure to the air; it is made as follows;—dissolve 640 grains of proto-sulphate of iron in one ounce of distilled water by the assistance of heat. At same time dissolve in another vessel 600 grains of nitrate of barytes in five and a-half ounces of distilled water, also by the aid of heat; when both are completely dissolved, mix together the two solutions, and stir with a glass rod; a dense white precipitate of sulphate of barytes will be formed, which quickly subsides, and the supernatant liquid, a solution of proto-nitrate of iron, may be poured off, and filtered while hot, preserving it in a closely stopped bottle. It is better to completely fill the bottle.

⁂ Several important communications in type are left over for want of space, including articles *On the Action of Light*, by Nièpce de St. Victor (conclusion); *Process for Positives, with the Salts of Uranium*, by H. de la Blanchere; *New Method of Developing Collodion Negatives*, by M. Frank; and letters from "E. J.," "Philo Photo," "A Tyro," "One in doubt," and "G. C. Bucks." The above shall appear in our next.

Several Advertisements have arrived too late for insertion in this number. Our advertising friends would oblige by forwarding their orders earlier.

☞ *Arrangements for an extensive sale of this Journal in America are completed.*

The
Liverpool & Manchester Photographic Journal.

New Series. No. 8, Vol. II.—APRIL 15, 1858.

We print, in another column, a letter from Herr Pretsch, with an extract from a communication of Professor Petzval's, relative to the new lens of the latter, touching which we made some remarks in a former number. We abstain from comment at present, but shall probably have something to say upon the subject on a future occasion.

At the meeting of the London Photographic Society, on the 6th instant, a few positive impressions in *carbon* were exhibited, but their mode of production was not communicated; there were, however, two or three suggestions hazarded as to their probable or possible source, amongst them the following, viz.:—Coat a sheet of paper with gelatine having lamp black ground up with it, and also containing a quantity of bichromate of potash. The paper would then present an even black tint. Expose under a negative sufficiently long to render the gelatine acted upon by the light insoluble; the unaffected portion could then be washed away and with it the black pigment in those parts. Another conjecture was that the paper might have been impregnated with bitumen of Judea, as in Niepce's process, and treated in a similar manner. The tones of the pictures exhibited were rather grey and wanting in good half-tone, but no doubt by further development of the principle an important advance in printing will have been effected.

We notice the announcement of a new Scotch periodical, to be called the *Art Review and Photographic Record*, in which, as its name imports, photography is to find a place; but we have little faith in these mixed interests—a house divided against itself cannot stand.

An expression made use of by Mr. Rejlander, that of painting with a few rays of light, gave rise to the relation, by our friend Mr. Wenham, of an amusing anecdote, in which he unconsciously displayed his aptness at resource in overcoming apparently insurmountable difficulties. While on his Egyptian expedition with Mr. Frank Frith, they came across a piece of sculpture that was not only in a dark place, but was, as it were, round a corner from the entrance passage, in about as unmanageable a position as can well be imagined; however, being desirous of obtaining a picture of it, Mr. Wenham was determined not to be baffled, and procured two looking-glasses, and stationing an assistant at the entrance with one of them, he directed a mass of the sun's rays along the passage, while receiving them upon the second mirror, he again changed the course of the rays, and being unable to illuminate the whole of the subject at once, by keeping the second mirror in constant motion, so as to *paint* the figures as it were with the light, a photograph was actually obtained.

The dark tent for operating by the wet process in the open air, exhibited by Mr. Dawson, at the North London Photographic Association, is not only roomy and well adapted for the purpose, but has the additional merit of being both inexpensive and simple, so much so that the clumsiest of village carpenters could find no difficulty in repairing, or in fact entirely reconstructing, the framework, should an accident render such a proceeding necessary. Two pieces of deal, of about one inch in width by three-quarters of an inch thick and seven feet long, are attached to one another by a screw in the middle, so as to allow of their opening like the letter X. A cord of about a yard in length attached to the top limits the distance to which they can be opened out. Just below the screw the slips of wood are hinged, so as to fold into half the length. There are three of these X pieces which, when attached to one another, form three sides of a square, the fourth side being rendered rigid by two straight slips three feet long each, being attached at the top and bottom. The mode of attachment is by one leg of the X being furnished with a slip of brass with a straight hole in it, which fits over a small staple in the leg of the adjoining one, and is secured by a pin attached by a short chain. Diagonal holes are pierced near the bottom of each leg for the purpose of inserting an iron skewer to fasten it firmly to the ground. Over the framework a covering of *moleskin*, such as is used for mechanics' trousers, is placed, having a window on one side of yellow glass or silk. The whole forms a square room of about six-and-a-half feet high and three feet siding. The entrance curtains are made to overlap, so as to perfectly exclude the light.

Mr. Rejlander has produced a most exquisite photographic composition as a design for sculpture, called "The Five Foolish Virgins," and were it not for the unmistakeable truth of the hair of the models we should almost have imagined that the group had been taken from the marble itself, so perfect is the *pose*, so completely does it tell its own tale—"While the bridegroom tarried they all slumbered and slept." It is a perfect gem.

The Publisher begs to say that owing to the influx of advertisements, and the length to which Mr. Rejlander's important paper (read at the recent meeting of the Photographic Society) has extended, this number of the *Journal* is increased to twenty-four pages. This course it is proposed to adopt whenever the press of new and important matter, and the increasing favours of our advertising friends, limit our usual space to too great an extent. The Publisher takes this method of shewing his appreciation of the great favour into which the *Liverpool and Manchester Photographic Journal* is rapidly rising. Neither in the Editorial department or in the Management of this *Journal* shall anything be wanting to render it, by the novelty and importance of its matter, and the great extent of its circulation and influence, indispensable to the photographic reader and advertiser.

MANCHESTER MECHANICS' INSTITUTION.

A WORD of congratulation may not be unacceptable to the directors and members of this institution on the very successful termination of their winter exhibition of photographic dissolving views. We have to thank them for the service rendered to our favourite art by thus exhibiting it in one of its most agreeable and impressive forms; we have to thank them, too, on behalf of the public for bringing us into the immediate presence, as it were, of some of the oldest, grandest, holiest, and most picturesque spots in the world. It would be a vain task to attempt to convey to our readers our own impressions at the first sight of the Great Pyramid and the ruined temples of Egypt, Nubia, and Greece; on the dismal shores of the Dead Sea; in the streets of the Holy City, or in the magnificent courts of the Alhambra. and the difficulty of the task is by no means diminished by the knowledge that what we are regarding is but the image of reality, and that while the beautiful objects themselves delight the traveller in distant lands, we ourselves find ample enjoyment in gazing upon their shadows.

We believe, and are glad to hear, that the Directors have every reason to be satisfied with the pecuniary result of this interesting exhibition, which closed on Monday, the 29th ultimo, with its 139th representation. Σ

LONDON PHOTOGRAPHIC SOCIETY.

THE ordinary meeting of this Society was held on the 6th April, R. FENTON, Esq., Vice-president, in the chair.

The minutes of the last meeting were read and confirmed.

Mr. O. G. REJLANDER's paper "*On Photographic Composition*," with a description of his "*Two Ways of Life*," was then read by the SECRETARY, as follows:—

I have been honoured by a request to read a paper this evening, the principal subject of which should be, the photographic composition entitled "Two ways of Life."

Considering the very unusual amount of criticism to which this work has been subjected, I am thankful for the opportunity afforded me of giving some explanation regarding its origin, and the object which I sought to accomplish in its construction; and I trust that I shall not be charged with possessing any undue quantum of vanity in thus responding to the call, and engrossing your attention for a few passing moments upon a subject you have done me the honour to stamp with your approval.

Permit me to ask your indulgence for the many imperfections which this attempt at addressing you will manifestly contain. *Artists* are not necessarily *writers;* and while it is my highest pride to rank as the former, I have not the smallest claim to be regarded as the latter.

The composition referred to arose out of the competition which was naturally excited among photographers by the desire worthily to represent, not only themselves, but the new art which they had espoused at the Art-Treasures' Exhibition in Manchester; and as every true soldier should fight as though the battle depended upon his individual exertion, I buckled-to in earnest. In passing, however, I cannot but remark, that in my opinion, and in that of others also, the Manchester authorities very inadequately seconded the efforts which were made, as they treated photography too much as an art belonging to the future, and consequently as one scarcely deserving of their present care.

Whether *good* or *bad*, my effort duly appeared, and full many a tilt did it sustain from the shafts of critics upon both sides of the Tweed, until at last it was *fairly*, or perhaps you may say *unfairly*, tilted altogether out of the Edinburgh Photographic Exhibition.*

It is not for me to say how far the reasons are correct which were adduced in justification of its rejection, but I take my stand in defence of my work, adopting the national motto, "*Honi soit qui mal y pense.*"

The principal reasons which actuated me in its production were the following:—

1stly. It was to be competitive with what might be expected from abroad.

2ndly. I wished to shew to artists how useful photography might be made as an *aid* to their art, not only in details, but in preparing what may be regarded as a most perfect sketch of their composition; thereby enabling them to judge of effect, before proceeding to the elaboration of their finished work.

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* The rejection of the picture, which I believe was solely instigated by ignorance, should surely have sufficed; but I have learned that aspersions were uttered that have fallen harmless upon me, but which were a disgrace to their authors. Even so recently as the 13th January, 1858, I read in the daily 'Press,' in its report of the proceedings of the Photographic Society: "The discussion of the merits of Mr. Rejlander's picture was also mixed up with the general question, Mr. George Harvey taking occasion to denounce it in strong terms."

3rdly. To shew the plasticity of photography, I sought to bring in figures draped and nude, some clear and rounded in the light, others transparent in the shade, and to prove that you are not, by my way of proceeding, confined to one plane, but may place figures and objects at any distances, as clear and distinct as they relatively ought to be.

I know well the prejudicial opinion I had to work against in attempting a composition; I kept in good memory the expressions made use of by that authority on art, the *Art Journal*, in its notice of our Exhibition of 1856, to wit:—"They are wonderfully clever, but after all they are but images of actors, posed for the occasion; they all want life, expression; passion they have none; yet these pictures tell a pleasing tale." Again, "We believe indeed that such pictures as those will have a tendency to lower the appreciation of art in the eyes of the public, and unfit them for receiving the full impression intended by, or seeing the beauties of, the artist's production."

In 1857 the same Journal remarked on that year's photographic exhibition:—"With the photographic exhibition it is not necessary to speak of individual works, as we would of the production of the painter, the cases are not parallel; the painter employs, or should employ, eye and hand governed by a presiding mind; the photographer uses a machine, and requires a 'little' judgment; the artist works from within to that which is without; the photographer employs external agents to do his bidding."

When reading these opinions I thought the same as I think now, that as far as the conception of a picture, the composition thereof, with the various expressions and postures of the figures, the arrangement of draperies and costume, the distribution of light and shade, and the preserving it in one subordinate whole, that these various points, which are essential to the production of a perfect picture, require the same operations of mind, the same artistic treatment and careful manipulation, whether it be executed in crayon, grey-in-grey, paint of any description, or by photographic agency, and the same in mosaic, if the worker be also the artist.

I should like to set all presumption of rivalry at rest, by not comparing this art-process with what is generally understood as art: let us reject all parallel, and examine the *modus operandi* of this, which is a new and distinct art, one but of yesterday, and discuss it according to the *results produced*, without comparison.

I believe a time will come, and that not far distant, when *real art* and photography will go hand-in-hand, the latter as a means to the artistic end. It cannot be otherwise: photography is but "the holding of a mirror up to nature;" and the more thoroughly a mind is imbued with the love of, and a discernment of the *true* in art, the oftener will it plume and refresh itself at the fountain of its inspiration, and draw from its ample, but to many, hidden treasures.

I cannot for my part see the objection that photographs want life, expression, reality. I cannot understand how a painting upon the same subject can, except in its colouring, be more real or truthful than a photograph, both being but representative. The difference is in favour of the photograph, which having passed through fewer mediums, must necessarily be the more truthful, at least in details.

But I will come now to the argument of the composition, "The Two Ways of Life." The world is aptly described by the immortal bard as "a stage, and all the men and women merely players."

It is upon this stage that I have lifted the *curtain* to introduce to you the *dramatis personæ*

In the background is represented a country scene, where, far from the tumult of life, two youths have been fondly reared. The time has arrived when duty calls them to perform their part in the busy haunts of men. The father, with many misgivings, but with many prayers, conducts them from the home of their childhood, through an archway, which is symbolic of the boundary between town and country. Left orphans at an early age, the spirit of the mother is seen still hovering near them, instilling into their minds good desires, and attending them as a guardian angel, that their feet slip not.

Aware of the dangers and temptations which will beset their path, the Sage cautions and counsels them:—

"My sons, if sinners entice thee, consent thou not:" "Keep thy father's commandment, and forsake not the law of thy mother:" "That they may keep thee from the strange woman, from the stranger that flattereth with her words:" "Go not astray into her paths:" "Incline thine ear unto wisdom, and apply thine heart to understanding:" "Length of days is in her right hand, and in her left are riches and honour."

With faith in his leader and guide, one of the youths appears willing to be led by wisdom and experience, and is thus brought into the paths which lead to *Religion*, at whose feet

"A lowly child, with unkempt hair
Is crouching down, yet welcome there."

Near to Religion is *Knowledge*, personified by a female reading, the book being a sign of human progress. From these, we come to *Mercy*, who binds up the wounds of the sufferer, and, "while pouring out the healing oil, consoles the weak and weary." The proper use of life is further illustrated by *Industry*, *Handicraft*, and *Mental Application*; whilst *Married Life* is faintly traced behind the group of Industry.

The other youth, more impulsive, braves the future for the present: believing in nought but what he sees, he slips the hand of his guiding friend, and, strong in his own conceit, goes *his* way, the wise man waving his hand in grief. Two *Sirens* with song and dance display their charms to tempt the youth; 'tis but a step,—he looks not far before him. Behind them, but in the foreground, lies an *Idle group*;—Idleness the root of every evil. The *Old Hag* thereby contrasts them well: like them she was; as she, they'll be, despised and vengeful in their turn. A *Bacchante* is in the foreground placed with the *cup* in either hand: in the deepest shade of that dark Bacchante lurks *Murder* with ready arm.

Hid from his view the *Gamblers* play; one wins the throw, foul or fair; the other seems aggrieved, yet ready to drown his anger in the tankard; the third has lost his all, and seems as lost himself. *Complicity* whispers close behind, and some strong arm is drawing off a pinioned man. To the central figure, with half-covered head, I have given the name of *Penitence*. She is placed, I think rightly, between the two ways of good and evil, to convey what is taught to and believed by us all, that repentance, if true, will not be refused by *Religion*.

This was the only subject I could then think of, which would enable me to bring into one picture various draped figures, as well as exhibit the beautiful lines of the human form; and in one or two of those unadorned figures I think I have succeeded in shewing such gradations of tints between the highest light and the deepest shade (as in the Penitent for instance) as may serve for a lesson in art without the aid of language. There are numerous spots and masses which I admit have no business there. I could not avoid them then, but with the experience I have gained I could be more successful now; having, however, to conceive every point in the picture in my own mind, and there, if I may so say, finish it, keeping it day and night in view, like a chess-player playing without the board, I could not be perfectly sure, when taking individual figures, whether the backgrounds should be light or dark, which difficulty you may easily understand. I had, in printing one figure whose general background might be dark when placed in the picture, to put one side or other against a light background, for the sketch I made was not sufficiently worked out in light and shade. Circumstances, too, made me vary from the sketch. The various peculiarities in the positions of some of the models are owing to their being more or less perfect in shape. Anxious to display the good lines, I had to hide what seemed less correct, not being able, like the painter, to draw upon the antique.

The rule of proceeding here is also contrary to the art of drawing. I began with the foreground figures and finished with those farthest off. After having fixed upon the size of most of the nearest figures, I proceeded with those in the second plane. With a pair of compasses I measured on the focussing glass the proportionate size according to the sketch; similarly with the third plane, and so on, until I was as far off the smallest group as my operating room would allow, and then I was not far enough by yards; so I reversed the whole scene and took them from a looking-glass, thus increasing the distance.

Having got all the figures of the various sizes, attitudes, and lights and shades that I wanted, and again sketching them on a sheet of paper, I found likewise that our largest prepared paper was much too small, and fastening two sheets together caused an inequality on the surface; how to cement them to shew no difference of colour at the joining was a poser which occupied me some days in solving. I made various experiments, until at last I found the best way was not to cement at all, but to put the two papers together edge to edge, and those parts of the picture which bordered on either side of those edges had to be printed at the same time, to ensure their having the same strength; and then I devised, to ensure the two edges being perfectly similar, to put the end of the larger sheet upon the smaller, and with a razor on a plate of glass I cut them both simultaneously. But as you know that a paper is put on glass in printing with the reverse side to you, I found that I could not be sure, after printing the first figure on either side those edges, that when I came to the second portion, I could with certainty put the papers in the same position as before: so I had to cut my papers again, and did so now irregularly with a nick top and bottom: this produced many inconveniences, particularly in the washing, until at last I cut the papers straight down to within a couple of inches of the bottom, when I continued the cut obliquely, which afterwards proved a sufficient guide.

Those papers were chosen from the same maker, and sensitised at the same time, to ensure the same tint after having been in the hypo; but even then it happened that the two sheets turned out with a different tint, and once the smaller sheet yielded a bluish tint, while the larger sheet was of a rich brown, though both were put into the bath at the same time; and, as a curious fact, I must mention that in all of those I have yet printed, the smaller sheets have shewn a slightly cooler tint, for the reason perhaps that being of a smaller body it was sooner acted upon. After having printed in all the figures, I had to find a background; and in the place where I reside there is not within some considerable distance any sign of classic architecture. So I went into a friend's grounds and selected from his garden-ornaments and portico what you see, excepting the draperies, which were arranged in my room, which is not twelve feet high; this, however, did not prove a serious obstacle, for if I wanted a curtain of large dimensions I had but to move my camera so much the nearer to obtain the required size, which would be properly tested when introduced into the picture, and so with any other objects I wished to pourtray. If I wanted to introduce an urn three feet in height, it might be taken from one not more than six inches with the same effect.

In printing, I commenced with the Old Hag, and rendered her so deep as to be nearly invisible, the figure alone being exposed to the action of the light. This was effected by first printing from all the negatives upon separate pieces of paper, neatly cutting out the figures, and then, instead of fixing the prints, exposing both pieces to the light until they were blackened all over. By this contrivance I was enabled to cover up, so as to protect from the action of the light, any portion of one negative corresponding in outline exactly to such part as I wished to introduce from another negative. The remaining portion of the sheet of sensitive paper that was not under immediate manipulation was protected by a covering of black velvet. I next printed in the Bacchante, having measured off the distance, almost as dark; then Murder, perfectly bronzed: then Repentance, very deep: next I came to the Group of Idlers, where the highest lights were just covered; then the Dancers rather lighter, and the Gamblers lighter still, and the figures behind yet more so. The Disobedient Youth was then begun, followed by the Sage and the Good Youth, hand in hand; then the two papers were put together, and the Religious Group was printed, when the larger sheet was put by into the dark room, and the smaller sheet was proceeded with in the same way. After all the figures had been printed, the two pillars and the lions were proceeded with: the pillar and lion behind Religion had, of course, to be printed with the two papers together, and the top curtain in a similar manner. Then the archway and the landscape appear, next the curtains, and finally the dark fringe.

When all these were printed, immense faith and determination were still required; for I can assure you it was a motley group: in spite of all the care I had taken in shading some parts in the light that they should not print too dark, and in spite of having used a sun glass for printing through the thickest whites, there was no harmonious whole. The lights and shades and distances for so many figures appeared to set me at defiance; so I put the two sheets together, and covered them with a plate of glass. Now comes the sun-painting. I cover up some parts of the picture, and use a few *rays* and *pencils* of light to just glaze over the gambling group, and using them a little more freely on the hinder figures; I said "thank you," and covered them up (for you must know that I talk a good deal to the mysterious agents while I am at work); "Now please to paint me the background behind them." The rays do my bidding, and on it goes smoothly and evenly. I can almost see the fluid flow; and knowing from practice how it will be reduced in the hypo-bath, I let the light paint it deeper in appearance than it was intended to be. I then uncover the Idle Group, and bid the light sink one of those figures deeper in the shade. I then solicit the rays of the sun to do the same on the side of Industry, and many of the spots and marks from the printing of the separate figures are then evened by the same brush, and finally the whole top of the picture is exposed: but as such light as I choose works quickly, I must move as fast and guide it well, or there will be marks from his brush: and thus the picture is produced.

My ambition has been that this composition should be wholly photographic. It is evident, that if art were employed to give it the finishing touches, it would be more consonant with what art requires, and equllay evident that an abler artist with better means could do a better thing. Nay, I believe that if Maclise were to make a composition indicating light and shade, like some of those splendid series of sketches which were exhibited in the Royal Academy Exhibition last year, I could produce from life a photographic picture that would require but little touching. I dare not say how far I believe we may carry this art; but I have a lively presentiment that the time will come, when a work will be judged by its merits, and not by the method of its production; and then, with some fostering care, things can and will be done, that scarcely believers, and never unbelievers, yet dream of in their philosophy.

Having concluded my paper upon the composition "*The Two Ways of Life*," I shall be happy to give you a few sketches from my photographic experiences, with the hope that they will possess some points of interest.

In the midsummer of 1855 I was printing a group of several figures, and my assistant was doing the same under my direction; it was a beautifully clear, sunny day, and the sky was cloudless. From that morning's experience I knew how soon to expect the figure to be done, or nearly so. When I thought the third figure sufficiently printed, I took the printing-frame into a dark room to ascertain the progress made, when, to my astonishment, I found there was but a faint image, instead of its being rather over printed, as I had feared. I was being apprehensive that I had exposed it too long; I first thought that something might have been amiss on that very spot as to the salting or silvering; but, when the printing-frame of my assistant was brought in, and that print examined, and found to be as little affected as my own, I was fairly astonished.

I scanned the heavens, but could see neither cloud nor smoke, nor yet anything like a red or yellowish light. We brought our frames into the sun again for printing purposes, and on re-examination we certainly found some progress made, though the figures were yet scarcely half done, and not to be compared with what I expected, although they had been exposed for the same period as the first figures. We again proceeded to print; and, after exposing our prints for about the same length of time as preceded our last examination, we again removed them to the dark room. I recollect well that though our respective figures did not require the same amount of printing, we exposed them similarly for the sake of comparison; and now my astonishment was complete, for both our figures were nearly over printed, and I could not see any cause, nor can I now give any reason for the remarkable difference in the results produced. I must here observe that after this we continued to print with the same steadiness and celerity as marked the progress of the first figures; and the only conjecture I can make with regard to this phenomenon is, that there may have been an undulating motion, or shortcoming of the actinic ray. I have not since noticed any similar effects in printing, though they may have occurred. I would not have ventured to mention this fact had I been alone; but the case being similar with both the prints, and having also the evidence of another witness, I thought it worthy of mention.

Another of my experiences I will also touch upon, only in corroboration of what I read in the *Liverpool and Manchester Photographic Journal* of January 15th this year, about the variation of the foci in photographic lenses by Mr. Claudet. I have noticed the same for a couple of years, but cannot give a reason why. I can only guess that there may have been a variation in the actinic ray, as in the case previously noticed, but more perceptible here. In the same Journal attention was drawn to the curious appearance of narrow streaks of light round the edges of objects in some landscape photographs, where the light appears stronger than the sky. That also has occurred to me, but each time there was a humid atmosphere and a prolonged exposure. And in addition to this, I may mention that I have several specimens taken in my room in dull weather, where the white cuffs round the ladies' wrists against a dark dress, and the white strings from a widow's cap which, I have no doubt, has been pointed out as a failure, when it is only an attempt to shew against a black dress, have been surrounded with a halo of fainter light spread over the black surface. The hygrometic state of the lens at the time may have been the cause, or I must plead ignorance.

The want of aerial perspective, particularly in the larger landscape photographs, has been one of the causes that has induced me to try to take a picture in different planes separately, and then print them together, which mode I have seen termed "tricks." An extensive landscape taken particularly with a large lens, is not true, nor will it ever be so—the focus cannot be everywhere. Here is a fair specimen of a view from Loch Katrine, taken at once; if it had been drawn by a skilful hand, directed by a correct eye, there would not have been so much detail, but the proportions would have been different and more true; and the larger the lens, the greater the errors. In this picture the focus was taken for the middle distance, between the steamer and the eminence, and that part is no doubt correct; but the distant mountains and the wood are too large, and the foreground is too small. While the camera was in the same place as when the picture was taken, I took another instantaneous view, with the focus for the distant mountains; the camera had to be so much shortened that, when that view was taken, the difference between the two backgrounds was so great that, when lineally measured, it amounted to 3-40ths of an inch, as you may see by these specimens; and, if I had taken a nearer focus for the foreground, the difference between the two pictures, I have no doubt, would have been half-an-inch, if I may judge by these two photographs, taken by smaller lenses, when the one was focussed for the distant mountain, and the other for the immediate foreground. And here the difference is a quarter of an inch—*vide* the specimens produced—and mathematically they must differ, as much as the difference of the squares described, and the angle from the nearest off focussed object to the sensitive plate in the more elongated camera; and this is what I think is the cause of the apparent want of aerial perspective. I should be very glad to possess a lens that did not need focussing. I should carry it in my pocket, and with a dry collodion process I could catch positions and expressions in a crowd far better than with my own eyes; for these poor orbs have to obey fixed laws, for they cannot even see a man clearly in the street while looking at a spot on the window frame.

The Chairman, upon inviting the discussion which ensued, stated that he had no doubt that the picture, at any rate, was highly instructive to artists.

Mr. Crace: I must beg leave to express the admiration which I think all must feel. I consider that the picture produced by Mr. Rejlander, of which he has been good enough to furnish us with an explanation, is the symbol of a new era in photography. I think never before have we had a really living scene so clearly and so perfectly pourtrayed. The picture itself has been severely criticised; and it certainly is to be regretted that two or three figures in it, though, perhaps, not exactly indelicate, verge so closely upon it, as to prevent that *general* approval of the picture which it otherwise would have met with. I am sure that I express the feelings of all present when I say that it is a wonderful performance, and that we are much indebted to him for his open and candid manner in explaining the process by which it was produced.

Mr. Shadbolt: I did not intend to have made any observation, but I cannot let pass the opportunity of expressing also my great admiration of this work of art, and of stating that I most strongly dissent from the opinion expressed by Mr. Crace, that there is *any* position of it which is offensive to delicacy.

Mr. O. G. Rejlander: If some people have thought any part of that picture at all approaching the indelicate, that I cannot help; I never intended it. Six weeks was the whole time that I had to conceive the picture in my mind, to compose it afterwards, to carry it out and deliver it at the Manchester Exhibition. A great many trials had to be made before I could get one at all fit to be sent, without being touched by hand. Perhaps some of the peculiar positions were owing to my wish not to shew too great an approach to the pre-Raphaellites and Bunyans. I was anxious to shew only what I thought were good lines, and if the models were not perfect, I tried to make the most of them. I carefully selected, and where I could I draped. I tried to shew what was good, and hide what was bad, at the same time keeping in view the intention that the figures should plainly relate their own stories, and the morals to be derived.

The Chairman: I will ask Mr. Fry to take the chair for a few moments, in order that I may say a few words, which I think of very great importance to the future interests and to the advance of this art.

Mr. P. W. Fry then took the chair, and Mr. Fenton continued as follows:—

Upon the last meeting of the sub-committee of the Society of Arts appointed to consider the best means of protecting the copyright for works of Art before the adoption of their report, the question arose as to the position which photography would occupy in art, and while every wish was entertained to give photographers the fullest *protection* that they could desire for the works that they should produce, yet there was a feeling among the artist members that they (the photographers) were not entitled to take their place among artists, but must be content to take their copyright as *re-producers* of art. Against that position I dissented very strongly, and I am glad to say, not without some success, and, although I was at first outvoted, the matter was again taken into consideration, and the difficulty of giving a direct decision was avoided by leaving the matter an open question. I think that as the question is now before us for consideration, it would be as well if photographers would devote some consideration to it—that they should take the trouble to go to the Photographic Society's Exhibition and look at the attempts that have been made, some very crude, all imperfect, but they are the beginning of the artistic application of photography. I will not refer to this picture, which, with all respect to its very great merit, I think is too ambitious a beginning, and what can be done; but I will refer you to small pictures. I will refer particularly to a picture by Mr. Grundy, of Birmingham, of the Wilkie or Tenier's kind. There is one picture of a Fisherman—a single figure, in which the lines have all been studied, as well as the *pose* of the figure and the *chiaro oscuro*; there is everything but colour—there is expression, though no doubt expression of a low order. The question was started whether it was possible to obtain a picture of a high character from the human body? To that picture I would refer as an answer to the question in one form, viz., with respect to a lower description of art. If you wish to answer it with respect to a higher class of art, you have only to take the same pains, and selecting the requisite models, to meet with the same sucoess as has been done with the lower style of subjects. I make these remarks in the hope that they will bring forth approval or dissent, by bringing the attention of the Society to what has been done, and by stimulating endeavours to carry that little to a greater degree of perfection.

Mr. Buss: I think that, notwithstanding any adverse criticisms, they have been passed without appreciating or understanding the immense difficulties under which such a work as that before us has to be performed. The mind of the artist has been completely exemplified throughout, but the difficulties of the camera of course shew themselves in the picture, and I am quite sure that those who have adversely criticised the picture are unacquainted with the difficulties of the camera. I am perfectly aware of them, and am astonished to see how well they have been overcome, and I can scarcely conjecture where he went for his models. I cannot allow this to pass without expressing my high appreciation of Mr. Rejlander's production, and I have no doubt, from what has been said, that the art will be advanced by that gentleman.

Mr. Le Neve Foster: Although I perfectly agree with all that has been said with reference to the talents of Mr. Rejlander and the picture he has produced, and although I perfectly concur with every one in congratulating Mr. Rejlander in the attempt he has made in a direction to rescue photography from the reproach that it was merely a meohanical art, still I and several others have come here with the idea that we should not only hear an explanation of that picture, but some explanation of the *means by which it was produced*. If Mr. Rejlander has invented a mode of production, he has an undoubted right to keep it to himself, but I thought from the title of the paper, we should hear some explanation of the means employed. I am utterly at loss to know how he has produced that combination of figures from the various studies separately taken.

Mr. Rejlander: I thought that the paper explained what I meant to convey, but if it did not, and you will be pleased to ask me any questions, I shall be happy to answer them. I think I stated that I first commenced to print the figure called Hag, [pointing to the figure in the picture placed against the wall.] This was then a large plain sheet of sensitive paper. I put the negative of this Hag upon it, and carefully excluded the light from every part except the figure, and the black velvet with which I covered the whole plate, with the exception named, was wrinkled just round *this* figure; while the sun shone, according to the intensity of the light, the velvet was moved so as to prevent any lines: if the chemical light was very strong, it was moved very quickly; if it was slow, of course it was not moved so fast. After a while I looked at it, and if I found that it was as much over printed as I wanted, knowing how it would come out, I have taken that paper out of the frame in the dark room, and I then applied *this* negative [pointing to another figure in the picture] as before, but in the place where I intended this figure to be, and of course, as before, I excluded the light from the entire sheet of paper, as also from *the* figure (the Hag) already printed; and to be sure that the half tones on this side may be kept intact, I had another Hag printed and cut out very neatly, without being fixed, and subsequently allowed to blacken of itself. It ought to be albumenised, not plain paper, because plain paper is apt to slip, and albumenised paper, if it is slightly damped in distilled water, will stick in the place when applied over the printed part, while I examine it now and then. Thus I have gone on with every figure, until I came to the background. Every one was done in the same way; all were covered up, except what was to be printed, and I printed some, as I said, very deeply, and some others not so deeply; some slightly, according to the distances required; and after having printed all, as every one of these figures had been taken in the same light, all equally strong, in order to give gradation of tone, having covered up all these, I exposed *this* group, for instance, to the light, and it had the effect of apparently weakening the shades, while the lights were intensified. Each figure was taken separately, each with separate backgrounds, as happened; one was an easel, another a warming pan. Of course I had a right to stop that out; then I covered up every part, and I exposed parts alternately for a considerable time, so as to give value to *this* figure, and went on from one to another, until I got them more perfect. I should say it was done, the whole thirty figures and all, in six weeks, and that was a year ago. I hope that next year I shall do something better, and I shall take very great care not to lay myself open to animadversion upon the ground of indelicacy.

Mr. Monson: I have seen Mr. Rejlander down at Wolverhampton; he has a very small operating room in a mining district, in such a very bad town to obtain subjects that I do not know how he managed it. If you were to get up a picture in London you would, perhaps, procure them readily; but Wolverhampton is the most unlikely place in the world for such a purpose. I was so interested in the subject of Mr. Rejlander's picture, that directly I saw his name down to give a lecture I travelled up to London to hear it, and very much gratified I have been with its explanation.

Mr. Buss: May I ask if the picture was entirely produced at Wolverhampton?

Mr. Rejlander: Yes.

Mr. Monson: I think it a meritorious affair to produce large pillars from small models and so on.

Mr. Crace: We must not forget other pictures that we have seen of Mr. Rejlander's with figures in action—we could not easily forget the washing scene, with figures hanging up the clothes and others in the suds, which could not be produced without a great amount of genius on his part, and practice in the drilling of the models to get them perfect; and then again, that scene of the factory boy and his sweetheart walking one day in their working dresses and the next day in their holiday attire. I consider that photography is materially advanced by the way he has produced absolute pictures, and while looking at this one we should not forget the smaller works that have led to the great one.

A Member: Will you allow me to ask how long the picture has taken in printing, because if you keep a paper long after it has been excited the high lights take a tint of yellow.

Mr. Rejlander: It takes three very fair days but if you employ albumenised paper you may accomplish it sooner, but if you are careful you may keep it perfect three or four days. It has happened sometimes that some of the lights have been slightly tinged, but not more than has been obviated by immersion in the hyposulphite of soda. It takes three good summer days to produce a picture like this one.

The Chairman (exhibiting a photograph): Mr. Rejlander requests me to shew this picture to the Society as illustrating a most important point in art. You may notice the muscles of the forearm are very much contracted, while the rest of the muscles are comparatively inactive, some of the muscles are so contracted that if they had been seen in a painting it would have been pronounced an exaggeration, but it was really the momentary contraction.

Mr. Rejlander: There is among artists a conventionalism that when a man is drawn of great muscle, for the sake of keeping, all the muscles in the body are drawn apparently equally developed, which could scarcely happen. I want to shew that of those muscles which are greatly excited, the opposite ones are just as quiescent. If any man presses me hard *here* (placing his hand upon his arm) *this* will be developed, and *these* muscles *(here)* will be perfectly flaccid. I hope photography will do art so much good that people will know that all the muscles should not be painted in action because some are.

Mr. Pouncey exhibited some photographs which he alleged to have been produced by printing in the pressure frame in such a mode that the material forming the picture is simple carbon. He stated that he was not prepared to communicate the process, it being, in his opinion, one of value, and his means not allowing him to forego any advantage to be derived from it.

A long and somewhat personal discussion then ensued, but as it is contrary to the established practice in any of the Scientific Societies to discuss *at all* any matter not freely communicated, we decline to repeat it.

The meeting then closed.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION

At the annual meeting held at Myddleton Hall, Islington, on 31st March, G. Shadbolt, Esq., Vice-President, in the chair, the minutes of the previous meeting having been confirmed, the annual report was read and approved, and ordered to be printed. Officers for the ensuing year were elected; the following gentlemen were balloted for, and admitted:—Messrs. J. Applebee, J. Oakeshott, G. Sheward, and W. G. Watson.

Mr. Dutton read the following paper on "*Experiments upon the Waxed Paper Process:*"—

Almost every book published on the waxed paper process gives a different formulæ for the iodising solution in which to soak the waxed paper; some of the solutions being very simple, others being very complex, and I have no doubt every one of them yielding very good results. I know, indeed, that a great many of them do.

A short time ago I began a series of experiments for the purpose of discovering, if I could, the best formula for an iodising solution, and I thought that some of the results of these experiments might be interesting to the members of this association.

In the first experiment, I took solutions of each of the salts which have been used in forming iodising solutions, of the strength of fifteen grains to the ounce of water, and having soaked little strips of waxed paper in each for a sufficient length of time. I excited each strip in the same solution of aceto-nitrate of silver, and developed them all in the same solution of gallic acid, and all exposed together for half an hour. The result is seen in these strips. It will be observed that the iodide of potassium gives the best result, the bromide a result nearly equal to it, the common salt a slight trace of a picture, the fluoride a slight colour in the sky, and the cyanide no result at all.

In the next experiment, I took solutions containing iodide of potassium and different proportions of cyanide of potassium:

	1st.	2nd.
Iodide potassium	15 gr.	15 gr.
Cyanide ditto	10 „	15 „
Water	1 oz.	1 oz.

The cyanide of potassium, it will be seen, does not appear to exercise any very great influence either in increasing or diminishing the sensibility of the paper; neither does it appear to induce any disposition to fog. I think, however, that it causes the waxed paper to unite more easily with the solution, and consequently that the paper is more regularly and perfectly iodised.

Papers soaked in solutions containing iodide of potassium, mixed with different proportions of fluoride of potassium, were treated in the same way. It will be observed that fluoride of potassium seems to cause fogging to a very considerable extent, and that the greater the proportion of fluoride the more fogging is induced. This disposition to fog may be prevented to a considerable extent by the addition of acetic acid to the aceto-nitrate solution. In each of these experiments, the time of exposure required to be very considerable, at least half an hour in a stereoscopic camera, with Ross's landscape lens. I do not think that this long exposure was the cause of the fogging in the case of the fluoride. The fogging was nearly in the same proportion, whether the exposure was long or short; and the fogging began immediately on putting the papers into the developing solution. I have, therefore, discontinued entirely the use of fluoride of potassium.

The experiment with solutions of iodide of potassium and different proportions of chloride of sodium, was the first that appeared to give any valuable result. In this experiment different proportions of common salt gave very different results; and at the same time, the time required for exposure was very considerably lessened. In some of the books published on the waxed paper process, it has been said that a large quantity of common salt caused the negative to *blacken all over.* I have not found this to be the case, and, as will be observed, I have used equal proportions of iodide of potassium and common salt.

With iodide of potassium mixed with different proportions of bromide of potassium the results are very similar to those obtained with chloride of sodium. Again, there is a great difference in the results according to the proportion of bromide present, and the exposure appears to be about the same as that required when common salt was present. Altogether, I think I should prefer to use the bromide of potassium to common salt, but I should be puzzled to give any reason for the preference.

In performing these experiments I have not been satisfied with merely performing the experiment once, but I have performed the same experiment several times, and the result has generally corresponded with the results that you have seen, or may see, if you examine the slips.

The next experiment I have only tried once, and cannot therefore speak as to its perfect truthfulness. It was to take waxed papers iodised in solutions of iodide and bromide of potassium, in iodide of potassium and common salt, and in the iodide and bromide of potassium with different proportions of common salt. It will be observed, however, that in all cases the result is nearly the same, so that there appears to be no reason for using solutions more complicated as far as the salts of potassium or sodium are concerned, than using either iodide and bromide of potassium, or iodide of potassium and common salt.

With respect to the use of gum, rice water, whey, or any other liquid in which to make the solutions, I may remark that I have not found any advantage from their use: but this may be owing partly to the waxed paper which I have been using in these experiments being rather thicker than that which is generally used. The use of free iodine seems to exercise a retarding influence.

As the result of these experiments, therefore, I think I may conclude that waxed paper soaked in a solution of iodide and bromide of potassium, or in a solution of iodide of potassium and common salt, will produce perfect and rapid results.

As good proportions as any for the solution may be as follows:—

Iodide of potassium	15 grains
Bromide, or common salt ...	10 „
Water	1 ounce.

In the discussion which ensued the general experience appeared to be in accordance with the results deducible from Mr. Dutton's experiments, viz., that the use of the cyanide of potassium was only to assist in the solution in penetrating the greasy surface of the paper; that a fluoride generally gave a tendency to fogginess; that the addition of chloride of sodium, or of bromide of potassium to the iodide of potassium, in the proportion of about one part of the former to three of the latter, tends to produce intensity of the image as well as rapidity of impressionability, and that the various etceteras sometimes recommended, such as rice water, starch, &c., were either useless or detrimental.

Mr. Dawson, who had had considerable experience in working with waxed paper, considered that bromide of potassium was preferable to chloride of sodium in *hot* weather, the latter under a high temperature being apt to produce stainy shadows.

A vote of thanks was given to Mr. Dutton for his paper.

The Vice-President exhibited a series of photographic views of the recent eclipse, taken by Mr. Emsley, of Leeds; also some specimens he had printed according to M. Niepce's directions with nitrate of uranium, and one of Voigtlanders orthoscopic lenses, the supposed advantages of which were explained by the Vice-President and Mr. W. Hislop.

There were also exhibited a very efficient, roomy, and inexpensive portable tent, by Mr. G. Dawson, constructed by Lamb, of Aberdeen; an ingenious fitting portable camera by Mr. W. Morley, of Islington Green; and a collection of the Honourable Henry Fox Talbot's early photographs, by Mr. W. Spicer.

At the next meeting, 28th April, Mr. Morgan will exhibit a camera and tent, and Mr. Judge will read a paper "*On the Wet Collodion Process.*"

ON THE PRODUCTION OF DIRECT POSITIVES—ON PRINTING BY THE SALTS OF THE URANIC AND FERRIC OXIDES, WITH OBSERVATIONS CLIMETIC AND CHEMICAL.

By C. J. Burnett.

The search after processes giving good positives direct is one of great interest in many ways, and which has received far too little attention.

Among the advantages which might be expected from processes of this nature we may enumerate the being able to see and judge at once, as soon as we have developed it, of the success or failure of our pictures.

At present the beginner, and often even the accomplished photographer, has the greatest difficulty, and is utterly at a loss, even after he has developed it, from the strange effect of the reversed lights and shades, to know whether his negative has received too much or too little exposure. He is also at a loss to know at what point to arrest the developing of it. With a positive direct process, all this is removed, the picture speaks unmistakeably at a glance, and the inexperienced or occasional amateur is placed, so far, on much the same footing as the professional photographer, whose correct judgment as to the state of ripeness and development of negatives has been secured by constant practice.

In collodion or other film-pictures, to be developed on the spot, (though it is possible that this may be avoidable,) we might judge of each picture at once, before we lay it past as a good one, while, with paper and allied processes, the development of one positive at the beginning of the operations, or one occasionally during the day, enables us to know sufficiently exact the character of those which we are reserving for after-development.

One great object of our search after positive-direct processes, should be to enable us to extend the use of paper or waxed-paper processes to those classes of subjects, in photographing which the use of collodion or other transparent films on glass is now rendered necessary, by the inequalities of texture, and of translucency in our papers.

The original positive-direct is manifestly unaffected by these inequalities in the interior of the paper, and, if we take the pains to secure a sufficient quantity of the blackenable (or otherwise sensitive) chemicals on the surface of the paper, should be a very perfect picture. Were we to proceed to multiply it in the pressure-frame, by transmission of light in the ordinary way, whether at one step by positive-direct processes, or by making negatives, by any common printing process in the first instance, to be afterwards printed from one positive in the same way, we should of course introduce the evil; but by either taking other positives direct by the camera from our first positive, or better, by taking a negative instead of a positive from it, in the camera, and then printing from *this* in a pressure-frame by the common processes; or possibly *still better*, by printing by juxtaposition in another way, the feasibility of which has been suggested to me by some of my uranium experiments, we may be able to get nearly, though *possibly* not entirely, rid of the evil. What I allude to is the developable impression produced on uranic papers by newspaper printing which has been placed in contact with it; and I have observed analagous phenomena in the case of argentine papers in various cases. The investigation of these phenomena, to see whether something practical in the direction just alluded to cannot be (as I have every expectation) got out of them, is one of the first things I intend proceeding to when able to resume my experiments. With the ordinary system of taking negatives in the camera, these negatives might be afterwards multiplied or printed from in the way we have just spoken of on the uranic, and probably also the chromic, ferric, manganic, and argentine papers, without, or nearly without, reproducing the internal paper flaws; only, for this style of printing, the original negative paper would require to be prepared or managed (which would be simple enough), so as to keep the picture as much as possible on the surface, instead of having it, as is general in our ordinary paper and waxed paper negatives, all through the body of the paper.

Such modes of multiplication and of manipulation might not only extend the most convenient use of paper for negatives taking in delicate subjects, as foliage, and to which it has not hitherto been so well applicable as are collodion and albumen films, without compelling us to use positive-direct processes, but might also, of course, be turned to very useful account in the copying of drawings and engravings, and reproduction of them from stones or plates, either impressed from the original directly, or in such a form as to afford a basis for the after-manufacture of photographic or photo-metallographic stones or plates, all this being managed without recourse to the camera, and we might even reproduce a printed page with woodcuts complete in either copperplate or stereotype metal.

Some of the experiments which I have made seem to point to rather startling and strange possibilities in connexion with the changes produced on our calotype and other sensitive papers by light or actinism.

One or two experiments have seemed even to indicate the possibility of producing pictures on an unsensitised paper or other surface, by the *after* application of sensitive mixtures containing silver along with gallic acid or ferrous or allied salt. But, still the imperfect result, or comparative or approximate failure, of such experiments generally seem to shew the necessity, for practical purposes at least, of the presence of some substance capable of entering into a more definite or stable combination with actinism, or more capable of being allotropised into activity, than such substances as paper or glass are.

It has been observed by others, as by Mr. Hunt, in his "Researches," that most invaluable storehouse of observation, and accords with my experience that many salts which do not appear to be "chemically," as the phrase is, changed by light, are yet so acted on by it, either by simple absorption, or allotropisation, as to act differently on silver salts, these, previously inactive, reducing it after light exposure. The action of proto-sulphate of iron on silver (and gold) salts, offers some very curious and interesting observations. The presence in or previous absorption of actinism by, or (cyanic) allotropisation of, either the silver preparations, or the ferrous salt, seems to be almost essential, at least to anything like rapid action, *i.e.*, in the presence of acetic or other free acid. The non-blacking all over of our ordinary negatives proves this; and there are other proofs of it, *e.g.*, sulphate of iron may be applied to our silver papers in preparation before solarisation. I have also made, not altogether unsuccessful though very doubtful, experiments in the taking of pictures on paper which had been prepared by protosulphate alone, and developing them after exposure by silver.

I have also, and successfully, mixed a proto-salt of iron, both with the uranic salts used in preparing uranic sensitive paper, and with the ferric or ammonia-ferric salts used in preparing ferric sensitive paper, and succeeded in getting pictures in these cases by silver and gold developments, shewing, amongst other things, and what can more clearly shew it, that it is not the mere production of ferrous oxide, or its presence in the ammonio-citrate papers, and their allies, which enables them to reduce the silver salts after solarisation. Two principal questions must be asked regarding these papers:—1st. Is it necessary that this reduction must have commenced, or is an unreduced ferric or uranic salt allotropisable, or otherwise convertible by light—absorption into an active silver—reduced?—2. Is the protoxide more capable of this allotropisation by light when acting on it at the exact moment of its production than after it has been formed?

(To be continued.)

THE PHOTOGRAPHER'S PHARMACOPŒIA.

New Method of Developing Collodion Negatives.

At the anniversary meeting of the French Photographic Society, held on the 19th Feburary last, the following note from M. Frank was read:—

Gallic acid, with the addition of acetate of lead forms one of the most active compound reducing agents, and is both easy of employment and economical.

This process, however, having given rise to numerous objections, and many operators having, after several fruitless trials, determined on abandoning it, a necessity arose for combined operation in order to clear away the doubts and establish anew the efficacy of the method.

M. Davanne having kindly placed his studio at our service, it is with his concurrence, as also that of Messrs. Bayard, Paul Perrier, du Tremblay, and Paul Gaillard, that we have lately made some new experiments. We have, with some slight variations, followed the original directions laid down by M. Lassimone, and each trial has presented satisfactory results.

Whatever kinds of collodion that were employed were sensitised in the ordinary manner, and after an exposure, *one half shorter* than that required when using pyrogallic acid, we have at once covered the film with a saturated solution of gallic acid; then, after the lapse of a few seconds, pouring off the liquid into a glass vessel, we have added five or six drops of acetate of lead, dissolved in distilled water, in the proportion of six per cent. The developer then became milky in appearance, and having poured it anew on the plate, the image was immediately entirely brought out, and a few minutes were sufficient to obtain all the intensity desired.

The greater part of our proofs required only from six to eight seconds of exposure, and the delicacy of the details and depth of shadows appeared to us not in any way inferior to the results produced by pyrogallic acid or sulphate of iron.

These numerous advantages have certainly already been appreciated by some operators, and we do not know how to recommend too strongly to our brother photographers to adopt a process of which the extreme rapidity above all others cannot be questioned.

⁂ Notwithstanding the increased space given in our number, we are compelled to hold over, till our next publication, the conclusion of Niépce de St. Victor's paper and also the article by H. de la Blanchere.

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

M. PETZVAL'S NEW LENS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—My attention having been directed to the last number of your *Photographic Journal*, I yesterday obtained a copy of it. It contains several remarks about Professor Petzval's lens which require some explanation.

My paper read before the London Photographic Society last December was not a "tremendous flourish of trumpets"—it was only an extract of a pamphlet about Professor Perzval's "researches in optics." This I stated at the time; and I consider, and am convinced, that the results of his calculations are beneficial to the art of photography; moreover, most of the combined lenses at present in use are constructed upon the principles at first brought forward by this learned gentleman. I consider that improvements of the instrument, without which a photographer cannot do anything, worthy of the utmost consideration; and I regret to say, that I do not think those brought forward have received due attention.

At the time when my paper was read I had not seen any of the mentioned cases—I had only received the printed pamphlet, some specimens, and communications from the manufacturer. The specimens have been admired by many people, although they are not excellent photographs, but they prove the peculiar qualities of the lens. Some opticians, present at the meeting, considered the communication of the utmost importance, one of them travelling afterwards to Vienna expressly for the purpose of obtaining such a lens, and some information about it. It seems, therefore, that it is no "very ordinary affair after all."

I stated in my paper, that the lens consists of three pairs of lenses, but I have also stated, that "there were the particulars given to me." Since that time I have received a few of the lenses, and they do in fact consist of three pairs, though but two of them at a time are generally used. In some exceptional cases all three pairs of lenses can be used, but the resulting picture then becomes smaller; and I have still to receive some information upon this point.

There are two distinct combinations to be used:—1st. The front lens and a back lens (3 inches and 3⅛ inches) are used like an ordinary portrait lens—focus 8½ inches, size of picture 8½ × 6½ and more, action rapid, delineation very good. 2nd. The same front lens, but another smaller lens at a short distance behind the first one, form the combination for the large pictures of sixteen inches and more—focus twenty-six inches, delineation beautiful, light and sharpness equally distributed over the whole surface.

I have also received a second publication of Prof. Petzval's, which contains much valuable information, and which proves by mathematical demonstration why those lenses should be constructed in the manner described. I have recommended to the Secretary of the Photographic Society to arrange a full and correct translation into English of both pamphlets, and then all who are curious about them will be able "to know anything or everything about Voigtlander's (shall we not say Petzval's) new lenses."

Some weeks ago I communicated to Messrs. Fenton, Rosling, Crookes, and many other gentlemen, that I had received a few of these lenses for sale;

and I think you had, therefore, some chance of being informed of it. Having received only a few, I did not consider it advisable to advertise them; but, if you will favour me with a call at any time most convenient to you, and appointed beforehand, I shall be very glad to exhibit and explain them to you as far as I can. I have only two left, but expect more shortly.

Yours, &c.,

67, *Great Portland Street, W.*, PAUL PRETSCH.
March 27th, 1858.

TRANSLATION OF A LETTER OF PROF. J. PETZVAL TO MR. PAUL PRETSCH.

Several articles in English Journals have proved to me that some people there are favouring the results of my researches with their attention. I find also that Mr. Voigtlander states that he has been acquainted with my new lens for many years, and another optician asserts that he has obtained full particulars from myself. Although I have published a detailed treatise about this lens—a correct translation of which into English I should very much like to see published—it appears, nevertheless, that the real qualities of this new production are not sufficiently known. Therefore I take the liberty of making some observations upon the subject, and shall be much obliged to you if you will publish them in some of the journals devoted to photography.

The utility of the smaller aperture of the second lens of my combination is, I think, not well understood. Every combination of lenses, invented for any purpose, suffers as a matter of course from some defects known by the name of aberrations. It is not possible to remove all, because there are several of them. We must therefore be satisfied to remove the most troublesome, and to balance those remaining one against another so as to leave as a residium a *minimum* of error. These remaining aberrations govern the special character of the instrument, limit or regulate the aperture and the degree of sharpness, require sometimes the use of a diaphragm to which they dictate a certain position. With my combination for views this place for the diaphragm is near the second lens, therefore the *mountings* of the lens can be used for the purpose, but the proper place of a diaphragm for a portrait combination is in the centre of the tube between the two lenses. These conditions regulate the proportions of aperture, and though, with a combination for portraits, both achromatic lenses may possess the same aperture, it is, however necessary, with a combination for views, to diminish the aperture of the second lens; but if we are content to suffer a little sacrifice in glass, consequent upon an enlagement of the front lens, this diminution serves also another purpose, viz., perfect equality of light, in the centre as well as in the extreme corners and edges of the picture, a peculiarity which will be appreciated in future more and more.

To make this more clear, we may imagine two pencils of rays. The first falls parallel to the axis of the instrument, and represents a point in the centre of the field of view; the other is inclined to the axis under the half angle of view, and represents a point on the extreme corner. The full aperture of the second lens is efficient for both pencils of rays, but not the full aperture of the first one. If the aperture of the first lens be three inches, the central pencil of rays possesses, whilst entering, a diameter of three inches, yet it is reduced after the refraction by this lens to a diameter of two and three quarter inches *when measured at the place where it reaches the second lens.* However, the whole of this smaller pencil of rays will not be admitted through the second lens, because it has not two and three-quarter inches, but only two inches aperture. Therefore three-quarters of an inch of the circumference of the first lens is not efficient, and constitutes the sacrifice which has been made to ensure the equal distribution of light. Consequently the objective acts like a combination of lenses, with an aperture of two and three-quarter inches, which is now equally available for all the bundles of rays, with the only difference that the aperture for the axial pencil is concentric with the lens, while those for the most oblique pencils coincide with its edge. All these are fixed proportions which are founded on the nature of the conditions, and do not depend upon the will of the calculator, and I can only add that a lens constructed as I have described, *must possess*, under the given proportions of aperture, the aptitude of rendering the sharpest picture of an object suitably placed without any diaphragm.

I have found in some places the opinion expressed that this new lens is especially constructed for taking views, and is not at all available for portraits. I am convinced by the profundity of the theory that it is not so. With some sacrifices in optical means, namely by adding two lenses more, we can obtain an important advantage in light, so that this will become really practicable. Moreover, I think that we might, under favourable circumstances, for the sake of the extraordinary beauty of the pictures, and of their plastic appearance, prefer the use of the view combination for taking portraits; because the time of exposure is not much more than double the amount required under ordinary circumstances.

Mr. Voigtlander asserts in his letter that this new lens has been known to him for seventeen years, and he has made this assertion also to the Imperial Academy of Sciences in Vienna. He stated that amongst the unsuccessful trials, made at that time for the purpose of carrying out some of my calculations, had been a similar lens. I had been, as usual, not satisfied with his productions, and some little things, for instance, proportions of aperture, differences of about three inches on the radii of the curves, which reach the absolute value of one-sixth, were no matter of importance, if only the principle were the same. He considers it therefore, as an old acquaintance, and gives it the name of "orthoscophic" lens.

I wish to reply hereto briefly. There is only one principle in optics, and that is the law of the constant ratio of the sines of the angles of incidence and refraction; all combinations of lenses, whatever they may be, must be constructed according to this law: therefore in this respect Mr. Voigtlander is right, if he means that this new lens is constructed according to this old and well-known principle. He possesses, also, the merit of having been the first who executed, seventeen years ago, the well-known portrait lens, calculated by myself, but known by his name. After I had discontinued all connexion with him, and ceased to communicate to him any theory, formulæ, or tables, he was obliged to rely upon his own resources, and invented what he termed the chemical focus, which was, in fact, a *separation* of the visual and chemical foci,—an invention I am quite unable to appreciate, considerimg it rather as a great defect for photography. He has never (excepting for a short period; seventeen years ago) worked according to my calculation,—does not work according to them even now,—which is proved sufficiently by his chemical focus, quoted in his price list under my name. If the calculation for the new lens was communicated to Mr. Voigtlander seventeen years ago, why has he kept from the photographic world during seventeen years this valuable production, the want of which has been felt long ago?

Mr. Voigtlander says, also, that the camera, with the movement on a prism, and with the surface of the image inclining to the axis of the instrument, is a very ingenious arrangement, but not necessary at all, since everything can be obtained with an ordinary camera. But I myself have found this camera indispensable for the view lens, because the nature of the lens requires the inclinations of the surface of the image to the axis of the instrument. And there arises the question again, how it happens that Mr. Voigtlander could have known the lens during seventeen years, and yet remain in perfect ignorance of its peculiarities? However, at all events, I am obliged to state that *at present nobody* works according to my calculations but the optician, M. Dietzler, at Vienna.

M. Voigtlander's memorial to the Academy of Vienna has been rejected as an absurdity.

Please to translate these observations into English, and make them known in some of the photographic journals.—I am, &c., JOSEPH PETZVAL.

Vienna, March 20th, 1858.

CEMENTING MATS, GLASSES, AND PICTURES TOGETHER.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have to thank you very kindly for your attention to my last communication, and I shall take it as a great favour if Mr. Malone will kindly reply to the query as to the binding of the glass mat and picture, as promised in August last.

Allow me to say that I quite approve of your method of inserting correspondents' letters, as well as the replies, as there is certainly a great deal of information to be got from them, and in my opinion it would be much better if the London and other journals adopted the same plan.—Yours very truly,

PHILO-PHOTO.

P.S.—Will not the Indian rubber solution recommended by you be very liable to peel or slip off, if the plate gets the least damp? I fancy that with the Indian rubber solution being so very smooth, that it will not stick to the glass sufficiently for it to be a lasting thing. I do not understand what you mean by saying the filtering paper I use for the varnish would be sure to cause floating particles, even if it were free from them before. Would it not be the same with the developing, fixing, bath, and all other solutions that drain through filtering paper, if it were so with the varnish?

[Your request has been forwarded to Mr. Malone, but we find he did not obtain the information you require. The Indian rubber solution was recommended on account of its being impervious to moisture, consequently there is not the least fear of damp affecting the pictures sealed up with it. *Heat* applied would allow of its being removed from the glass, but it would not be at all liable to slip off without being *roughly* handled, and that within a short time of its first preparation; however, what would make "assurance doubly sure," would be to cement a *second* paper, covering by means of the common *liquid glue* (shell lac dissolved in pyroligneous spirit.) Fibres of filtering paper that become detached, as soon as they become saturated sink to the bottom in *aqueous solutions*, but in varnishes, collodion, &c., they remain suspended, or float on the surface.—Ed.]

DIAPHRAGMS FOR PORTRAIT LENS TO FIT IT FOR LANDSCAPES, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I take the liberty of sending you the enclosed stereoscopic slides as specimens of my progress, and for your veteran inspection. Being the first efforts of a novice in printing, a notice of their defects will prove very acceptable.

1. The negatives of Nos. 1, 2, and 3 were taken by the wet process, in less than two seconds, with a quarter-plate lens, full combination, and no stop.

2. The negative of No. 4 was taken with an oxymel plate, prepared one day, and exposed and developed the next. The exposure being less than one minute (3) with a ⅜-in. stop *behind* the front *combination*, and no sunshine. I have toned the whole with gold, fixing them in one bath, and toning them in another. The details seem better brought out in the oxymel plate; its tone and clearness surpasses the unpreserved ones. Although the negative is paler by reflected light, it is considerably more opaque by transmitted light. I find this process much more simple and certain than I anticipated, as one expects at first to meet with failures. The one I enclose is the last I took out of three plates which I prepared as an experiment, little expecting so good a result. All three made good pictures, the subject of the enclosed being the most interesting. Having failed in two attempts with the collodio-albumen through blistering, I cannot but feel pleased with the success I have met with in this my first use of oxymel. The short time of exposure is one great consideration, as I find it takes but little more than the ordinary wet process; and this is often of importance, for it would be difficult to get a gaping rustic, whose presence might give effect to some country landscape, to remain quiet for five or ten minutes, as some of the dry processes require.

Of the three plates I experimented upon, I proceeded as follows:—The first was well washed after sensitising; the oxymel was then poured over, as you would the developer, moving it about from side to side, until it would flow evenly off. The second was allowed to remain in a dish of water for a miuute or so, and treated with oxymel as the first. The third was only allowed to drain for a couple of minutes after taking out of the sensitizing bath, and treated as the others with oxymel, only requiring a little longer time before the oxymel would flow evenly over the whole of the plate. As the oxymel carries most of the silver bath before it to one end of the plate, I intend allowing it to run into a developing glass, and then pour it over again once or twice, and then move it about by slanting the plate all ways, until all oiliness disappears, just as in developing. No. 4 is a print from the last plate; of its merits I will leave your experienced eye to judge. The collodion film in the two first plates shewed a strong tendency to wash off, and one started; the last showed no such symptoms. 4. I have mounted and varnished them with gum arabic, not knowing any other method; they don't appear as smooth and as artistic as what the professionals turn out.

5. My next experiment will be to mix the honey with the silver bath, and see whether the sensitising and coating can't be done under one operation.

With many apologies, yours truly,

Holywell, March 20th, 1858. E. J.

[1. The negatives of Nos. 1, 2, and 3 are all *under-exposed* and weak, moreover the subjects require a smaller aperture in the lens to be effective. 2. We certainly congratulate you upon your improvement in the printing, as well as in the production of your negatives; your picture numbered 4 is good in both respects. 3. The stop is better placed *midway between the back and front combinations;* you can readily manage this by cutting discs of millboard, and punching holes of various diameters in the centres; they can be held in place by pieces of bent wire. In case millboard is not at hand, three or four thicknesses of stout brown paper glued together will answer very well. 4. You will find common gum the worst medium for mounting with, as a rule, unless you add to it a small quantity of *glycerine*, which prevents its cracking, and keep in it a lump of camphor to preserve it. Thin glue answers extremely well for mounting, as also Indian rubber solution. 5. You will spoil your bath if you mix the honey or oxymel with the nitrate of silver, as the latter will be *reduced* even in the dark.—Ed.]

CONSTRUCTION OF GLASS OPERATING ROOM.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I should esteem it a favour if in your next *Journal* you would give me your advice on building a glass house upon the spot I will describe :—a lead flat at the back of and adjoining a house facing the west, and open on the north and south sides also; the flat is fifteen feet square.—I am, yours truly,

ONE IN DOUBT.

16th March, 1858.

[If there is access to the intended glass room from the house, we should recommend glass on three sides; but if only two of the sides can be of glass, let those two be the *west* and *north* in your case. The roof, of course, should be glass, and not less than *seven feet* high at the lowest point—more if you can afford it. The lower part of the sides all round may be of wood, say from twenty-one inches to two feet from the floor. Do not let the panes be too small: moderately thick *sheet glass* will answer very well and is not expensive. Blinds of white or light blue are best and should not *roll up* but be fastened upon rods at top and bottom, with small brass rings, with the curtains capable of being slid up together or stretched out. It is not necessary that the different breadths should be joined together, nor, in fact, is it advisable; but there should be a sufficient number to shut in any two sides if required. The roof should be provided with blinds in sections, all capable of being drawn up on rollers to the highest part, or left partially down at any point. If you have *three* glass sides, a moveable background on castors should be provided, which can be arranged in any position. A good plan is to have a stout wooden frame, like the wooden support for the canvas of a painting, and at either end at the bottom a stout cross piece about a foot long, each one carrying two castors. The frame should be covered on both sides, one being light coloured the other dark. An arrangement such as we have described is adapted, we believe, to every contingency.—Ed.]

PHOTOGRAPHIC MAGIC LANTERN SLIDES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Can you favour me with an idea as to where I shall find the process for producing photographic magic lantern slides? Such, for instance, as the beautiful subjects exhibited lately at the Manchester Mechanics' Institution. Only a month or two back I found in the *Journal* a notice that "small transparent pictures make good magic lantern slides," but I cannot find anywhere how to produce them. I believe architectural or landscape subjects are the best for slides, especially the former; and that portraits will not answer. Can you tell me the reason of this latter fact?

Excuse this troublo: your valuable advice may make something out of A TYRO.

[Magic lantern slides may be produced precisely in the same way as the transparent positive stereographs, that is, by bringing the negative in *direct contact* with excited albumenised glass plates, exposed to diffused daylight for a few seconds, and subsequently developing in the same manner as for a negative. Instead of albumenised glass, the dry collodion process of Dr. Hill Norris, or the collodio-albumen of M. Taupenot, may be substituted with advantage, especially by tho amateur. Probably a small pamphlet called the "Photographic Tourist," published by Frederick Cox, 22, Skinner-street, London, E.C., will meet your requirements. We do not agree in the proposition that portraits will not answer in the magic lantern.—Ed.]

WASHING PRESERVED PLATES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In the manipulation of the dry collodion process should, or should not, the plates be deprived of the free nitrate of silver on their surface by washing after they come from the nitrate bath, and before they are coated with the preservative solution? Some, as Sutton and Lowe, say not; others, as Hill Norris, advocate it. If you would kindly give me your own opinion, and the reasons for it, it would much oblige, your humble servant,

Bristol, April 2nd. A SUBSCRIBER.

[It depends upon the nature of the preservative solution, and how applied; also upon the length of time that you desire to keep the plates before using them. Read the reply to "Vale Salve" in our last. If any free nitrate be left on the plate with a *dry process*, it almost invariably causes fogging or stains; but, if with the honey process, or any modification thereof, it does not so, except in *very warm* weather, and then only if kept more than twenty-four hours. The object of leaving any is to shorten the necessary time of exposure.---Ed.]

QUALITY OF A PORTRAIT COMBINATION.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I beg leave to thank you very sincerely for your kind reply. The developer I used was pyrogallic acid, and the haze of light was produced by developing more in that part of the plate.

My lens is a whole plate made by * * * * * London. I have taken the liberty of sending a few spoiled prints from some negatives, to ask the favour of your opinion of my lens from these. In the large head I have marked No. 1 the hair is very indistinct, and one eye is out of focus. If you could inform me if it could be rectified, and to whom I could trust it to alter, I should feel greatly obliged. A friend of mine had a quarter lens; his brothers took it to pieces to play with as burning glasses; he sent it to the maker I have named to put it to rights, but since it came home again he cannot get a sharp picture with it: so I am afraid some opticians are like watchmakers. I am, yours obediently,

M. A. H.

If you could spare room in your next number I should feel greatly obliged.

[Your five specimens clearly explain where the fault lies: you have attempted to take pictures upon a scale *too large* for the lens employed, which, if not quite a *first-class* instrument, is certainly not a bad one for pictures up to a certain size. By the way we may as well mention that we do not care to be informed of the maker's name to enable us to judge of a lens; if we could not estimate it without that knowledge, our opinion would not be worth much. In your former letter you sent a specimen which we alluded to as being affected by a circular hazy appearance, and as the paper manipulation was not amiss, we presumed that the lens was in fault; but as all the five specimens now sent present the same circular outline, we perceive that you have used a plate larger than can be covered up to the corners by this lens, which we should not employ for more than a half plate size. The portrait of the lady, numbered 5, is sharp enough and in good proportion, except the lower part of the dress, which is somewhat enlarged, but that is not of any consequence in this instance, as it only looks the more fashionable. No. 2, a gentleman's portrait, is also good and fairly sharp, the right hand, however, is somewhat enlarged, though not particularly prominent, an indication that you should avoid placing your sitter any nearer to the lens than in this instance; the scale adopted for this picture should be regarded as a *maximum* for the lens employed. The manipulation of this picture is very good. Nos. 3 and 4 are upon a larger scale, and are very faulty in outline, in consequence of too great proximity to the lens; while No. 1 is still worse from an exaggeration of the same cause. Should it be *necessary* for you to attempt a picture upon a scale larger than No. 2 with this lens upon any occasion, you will find it advisable to use a diaphragm to reduce the aperture, and will, of course, have to increase the exposure. When the lens is *strained*, spherical aberration comes into play with increased force. We do not know any optician who would undertake to correct a faulty lens of another's make.—Ed.]

DEAL CAMERAS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I am happy to see, by a paragraph in your last leader, that you are disposed to advocate simplicity and portability in our photographic apparatus, in preference to weight, show, and consequent high cost. The subject of the material for cameras, and also their form for field work, is one of the highest importance to the amateur photographer as an artist. It would form a very appropriate theme for a prize, if ever such a proposition were made in connection with our numerous societies.

You mention deal as a desirable material, except that it is "too hygrometric." I wish to call the attention of your readers to the fact that the well known Captain Kater was engaged for some time in searching for a material for the rods of his pendulums, which should be as invariable as possible. At length he adopted and recommended this very substance, namely, deal, as the least affected by moisture or temperature. After cutting it to size, he simply coated it two or three times with linseed oil, and then varnished it. Thus prepared, deal is now used for the same purpose, and forms the best, because the most unchangeable substance that can be employed for an uncompensated pendulum.

I have recently had a collapsing camera constructed of French-polished pine, the body being made of India rubber leather cloth, and the base board of ash, made to hinge in two pieces. The size is for plates ten in. by eight in., and the weight of the whole including a Spanish mahogany collodion frame and focussing glass, is under six and a half pounds. I have no doubt, from my own experience, that this camera will prove as durable as mahogany, while its lightness and cheapness render it a much more useful tool than one of the ordinary form and material. I am, yours, &c.,

London, 6th April, 1858. F. R. A. S.

[The late Captain Kater's requirements for a pendulum were fulfilled in the use of deal, because it varies very little in *length,* but this is not the case laterally. However, if treated as suggested by our correspondent, we think it highly probable that it would answer perfectly for a camera. We consider Spanish mahogany as quite unfitted for any part, on account of its great weight, nor do we approve of ash. Where greater strength is required than is afforded by deal, plain Honduras mahogany, such as is used by coachmakers, is the article we should prefer.—Ed.]

ANSWERS TO CORRESPONDENTS.

G. C., Bucks.—By reading the account of the meeting of the North London Photographic Association, and Mr. Dutton's paper, in the present number, you will find answers to all your questions, except the temporary fixing of the waxed paper negatives, to effect which object soak them in salt and water for (say) ten minutes or so, rinse well, and dry. Keep them in a portfolio secluded from the light, until after the final fixing.

R. S. D., Huntingdon.—We have not forgotten the article on enlarged negatives, *but* there is so much important new matter that we *must* wait until this is somewhat less pressing. Your pictures are certainly not pleasing; we have never tried the process you name, but should imagine that a judicious application of dilute nitric acid after the iron salt, and before the gallic acid, would preserve the whites. Possibly the proto-acetate of iron might answer better.

Felix, Kensington.—1st. Dextrine (or British gum, as it is called in commerce) is formed by boiling starch with sulphuric acid, and then removing the acid by the aid of lime. It is used in photography in the same way as albumen in Taupenot's process. 2nd. It is not only necessary to take two views for stereoscopic negatives, but they must be taken from two separate points of view, distant from one another not less than two and a half inches. 3rd. It would not be possible to prepare glass plates in the same way as albumenised paper. 4th. We cannot undertake to recommend the collodion of any one maker—either of those you name would, no doubt, answer your purpose.

T. F. Taylor.—We have been kindly furnished by Mr. J. F. Taylor, of Dumfries, with the following reply:—"Varnish the collodion side with a weak solution of gum arabic in water, and when dry go over the surface with megilph or oil; lay on a background with opaque colours, and the face and hands with transparent ones, with the exception of the high lights, for which I use flake white, transparent golden ochre, Naples yellow, and rose madder."

Received.—Arthur Maddison, and J. B. R.

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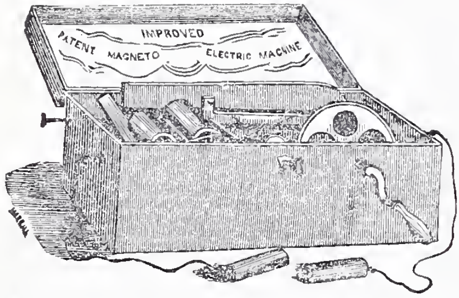
Prepared by F. PERRY, Chemist, High Street, Sheffield.



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PAPETERIE MARION, 152, REGENT STREET (W.) LONDON.

The Liverpool & Manchester Photographic Journal.

New. Series. No. 9, Vol. II.—MAY 1, 1858.

The approaching summer exhibition of the London Photographic Society is now looked forward to with considerable interest, as the amount of space capable of being appropriated to the display of the pictures is exceedingly limited. Under these circumstances it is to be expected that the selection will be unusually choice; indeed, it will be wise in intending exhibitors to contribute only their best productions, which, by the way, are to be sent in by the 6th, but the opening is not to take place until the 15th instant.

One of the symptoms of the advance of Spring is apparent in the general attention being strongly turned towards the various printing processes: every manipulator seems to be anxious to evade the necessity for using hyposulphite of soda, with its consequent laborious subsequent ablutions of the proofs. We would urge our readers to consider carefully the article now in course of publication in these pages by Mr. Burnett, who throws out some valuable hints as to the direction in which we may most profitably carry on our experiments, with a view to superseding the present mode of procedure. We have seen samples of proofs taken by some of the methods indicated, but, although they promise well, we must confess that, up to the present time, we have not seen any that can successfully rival the best of our silver sun prints, being all somewhat flat and worn in appearance. The same observation applies to pictures produced by the process given by M. Blanchère, and we cannot forbear remarking that we find, *practically*, that mere washing in distilled water is *not* sufficient to fix the proofs permanently, as a small, possibly infinitessimally small, quantity of the nitrate of silver appears to adhere obstinately to the organic matter of the paper, and causes it to darken somewhat in a strong light. A weak bath of ammonia and water, however, obviates the difficulty, and at the same time enables the operator to make use of common, instead of distilled water, as any chloride of silver that may be formed is soluble in the ammonia.

We have a letter from Herr Paul Pretsch, in which he draws our attention to a few errors that have crept into our version of Professor Petzval's letter, but we cannot regard them as of much moment—the dimensions two and *three-quarter inches* having been given instead of two and *two-thirds* in two or three instances: now, had the various densities of the glasses employed, with their relative curves and distances, been given, the matter would have been important, but in a vague description like that published, it is a mere bagatelle. One *error*, according to Herr Pretsch, we quote, viz.:—page 102, second column, twelfth line from bottom, instead of "excepting for a short period, seventeen years ago," read "excepting for the short period of seventeen years." We readily admit having altered the reading of this passage, simply because, as *corrected* by Herr Pretsch, it appears to us as very much like nonsense, and not at all likely to be what Professor Petzval intended. Herr Pretsch says because he *has worked*, but how has he worked? Are there not sometimes pieces of music performed in a mode that the composer would be obliged to confess that it is his composition, but certainly not his music? These remarks do not appear to us to coincide with the statement of Professor Petzval. While upon this subject, we cannot forbear from noticing that this gentleman seems to imagine that the English are very deficient in the knowledge of optical principles, for he considers it requisite to point out that the *smaller size* of the second combination in *his new arrangement* is designed to give an equal illumination over the whole field. Perhaps he will kindly inform us how, *in this respect*, his small lens differs from the diaphragm in the ordinary landscape lens. He also lets us into the notable secret that the proper place for the diaphragm in the portrait combinations is *between* the lenses; we almost expect to see next the statement that the object of the glasses is to *refract the rays of light*. Now, lest we should be misunderstood, we may say at once, that we by no means undervalue the talents of Professor Petzval, nor the great services he has rendered to photography, but we cannot with patience receive as *important announcements* rudimentary facts, which must be palpable to the veriest tyro in optics.

We regret to find the Secretary of the London Photographic Society regarding with complacency the ugly word *photogram,* and are rejoiced that (as he admits) its introduction would now be next to impossible. For the same reason that he finds *photogram*—shall we say happily excluded?—we wonder that he does not perceive that the equally objectionable word *stereogram* cannot be made to supersede the already-established "*stereograph.*"

It is perfectly surprising that a large amount of misapprehension should exist with respect to stereoscopic principles, after so much has been written on the subject; we have constant applications for information, and as the time is rapidly approaching when the army of caterers for the stereoscopic appetite will take the field, we would offer a few remarks, especially as we have two correspondents in the present number whose communications are connected therewith. We have abstained from copying in our journal the account of the "Telestereoscope" that has been the round of the photographic publications, both foreign and domestic, and alleged to be the invention of a German, because we had been acquainted with it for fully *five years,* through the kindness of the original inventor, who has, at our request, given a description of it, which we publish in another column.

We have been accused by different individuals of advocating a *strict adherence* to a uniform distance of two and a-half inches between the points of sight, while others have reproached us for urging a contrary proceeding, and others again have charged us with inconsistency upon the point. The truth is, that we have *advocated* neither the one nor the other, but have strongly recommended operators *to do as they like.* We have, however, endeavoured to point out the principles involved in either case, and will do so now.

If it be desired to reproduce a correct representation of any given object or objects *exactly,* as an observer perceives it, or them, from any definite locality, it is indispensable that the points of delineation shall coincide with the centres of the optic axes, the distances will consequently average about two and a-half inches; but it is equally *indispensable* that the lenses employed shall have a focal distance exactly equal to that of the eye from the stereograph, when viewed in the stereoscope; and, thirdly, that the two pictures shall be placed at such a distance apart as will cause the optic axes to be directed at the same angle as when viewing the natural objects. Unless these three conditions be strictly fulfilled, a departure from the actual facts must occur to some extent, be it little or much; but, practically, it is inconvenient to use a lens of so long focal distance as here indicated, consequently to compensate to a certain extent one error by another, a *slight increase* in the distance between the points of delineation, say to four inches, will nearly equalise the error produced by using a lens of about four and a-half inches focus, instead of about six inches, as it ought to be for the stereoscopes in common use. By this arrangement the effect will be approximately similar to that of viewing the same objects from a somewhat greater distance. There is no question of the fact that the increase of distance between the points of sight increases the *apparent* distance between the near and distant objects—the exact effect that is frequently desired to be obtained.

With regard to parallelism or convergence of the axes of lenses, it is *practically* immaterial, provided some other provision is made for regulating the distance between the two pictures upon the plate, because the amount of obliquity of the central ray of each pencil is in landscapes so small as to be imperceptible, unless a very great difference in the points of delineation is adopted.

One more observation and we have done with this subject for the moment. There have been lately introduced several clever arrangements for facilitating the production of stereographs by means of improved cameras, amongst which we may mention those of Messrs. Murray and Heath, Horne and Thornthwaite, Ottewill, Croughton, and others, some of which we hope to be able to describe shortly.

We have been favoured by Messrs. Forrest and Bromley with samples of their contrivance for producing the vignette style of printing, a style which adds very much to the artistic effect, and is also useful as regards offering facilities for introducing a larger angle of picture with any given lens that it is otherwise adapted for. The idea of the vignette in photography originated, if we remember rightly, with Mr. Mayall, for his daguerreotypes, and this he effected by the interposition of a star-shaped diaphragm between the sitter and the lens, but the contrivance of Messrs. Forrest and Bromley admits of printing from any negative without its having been specially taken for the purpose. We very much admire the effect produced, both for landscapes and portraits, and cannot but consider that it will meet with general approbation. The same arrangement has been adapted to the printing from stereoscopic negatives, and with some subjects produces a very picturesque effect.

We desire the attention of our readers to an important arrangement connected with dried collodion plates, by Mr. Fothergill, whose letter to the editor of *The Times* will be found in another column.

Mr. Glover, of Liverpool, has devised a new preservative solution for collodionised glass plates, that is stated to be more efficacious than any hitherto used. We have, at the last moment before going to press, been favoured by Mr. Glover with his formula, which we give elsewhere. We must reserve further remark.

Another photographer, residing in the same locality, has been at work upon lenses intended for including an unusually large angle of picture. This is a subject upon which we shall have something to say in a future number.

We caught a passing glance of a new photograph, by Caldesi and Montecchi, representing the eight royal bridesmaids, being from a different negative to that exhibited at the South Kensington Museum, which we noticed in a previous number as being not well focussed; but, although the present one is free from the fault then complained of, we do not like it much better. It is true, that in taking eight young ladies, nearly of one height, dressed in uniform, and that all white, the photographer has some difficulties to contend with; but surely some better arrangement as to grouping could have been made than merely placing them all standing in a row. If it be contended that they were so arranged because they stood in that way during the marriage ceremony, we cannot admit that as a justification, inasmuch as the principal figure, the bride herself, is absent; moreover, we do not see why they should not be arranged, as they probably were at some period of the day, in an artistic, because in a natural manner. We hope the artist will try yet once again.

THE HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

At the meeting of the above Society, held at the Royal Institution, on the 15th ult., the Chairman, Dr. Hume, announced that the amalgamation of the Liverpool Photographic Society with the Historic Society was now complete, in accordance with the Act of Parliament.

Mr. Atkinson exhibited a very simple machine for taking positive glass pictures with the vignette effect; it consisted of a stand, upon which was placed an upright frame, enclosing a white metal diaphragm of the shape of the vignette required, the bottom part of the former sliding in a groove, distancing the diaphragm from or to the lens, so as to regulate the size.

Several very beautiful negatives of views taken in Wales, by Mr. Glover's new preservative fluid, were exhibited by Messrs. Cooke. This solution has been very favourably spoken of, and the results exhibited were highly encouraging; they seemed to be free from the blistering which Taupenot's and Long's processes are liable to. The formula, furnished by Mr. Glover, is given in another column.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

The annual meeting of this Society was held at the Chorlton Town Hall, on Wednesday evening, April 14th, the Vice-President in the chair.

After the election of officers for the ensuing year, the following Report of the Council was read and unanimously adopted:—

REPORT.

The Chorlton Photographic Association having now completed the first year of its existence, the Council, on retiring from office, have thought that a short review of the circumstances under which it was founded, and the results of its working during that period, will not be unacceptable to its members.

When the application of collodion to photographic processes was successfully established by the late Mr. Archer, a great impulse was given to the practice of the art, which soon became a favourite one with almost every class of society; but so subtle were the agencies concerned in the production of photographs, and so little was known of their properties, that a want was soon felt in every circle of photographers for some social union, where interchange of experience might be made available for their common good.

This led to the formation of Photographic Societies all over the country, and resulted here in the founding of the Manchester Photographic Society, which opened with about 150 members.

Large as this number was, it failed to include many an ardent photographer for various reasons, chiefly from the fee of membership having been fixed unnecessarily high, the few opportunities afforded to its members for meeting, and the confining those meetings to the winter months, when the practice of photography was almost in abeyance.

In a large community like Manchester, and with these facts before them, it was thought by several gentlemen that, without interfering with the usefulness of the older association or creating a schism amongst its members, a second one might be established, which would meet these objections and further the general interests of photography.

Accordingly, at a private meeting, held on the 18th May, 1857, a committee was appointed to organise a new Society on this basis.

The Chorlton Photographic Association during the past year has consisted of forty-two members. At their monthly meetings, held at the Chorlton Town Hall, the following papers have been read:—

June 11th, "*On Sang's New Preservative Process,*" by Mr. Hooper.

July 9th, "*On the Chemistry of the Collodion Process,*" by Mr. Hepworth.

Sept. 9th, "*On the Collodio-albumen Process,*" by Mr. Draffin.

Oct. 8th, "*Experiments on several Dry Processes,*" by Mr. Hooper.

Nov. 10th. "*On Colouring the Backgrounds of Glass Positives,*" by Mr. Whaite. "*On the preparation and Properties of Gun Cotton,*" by Mr. Deane.

Dec. 10th, "*On the Nitrate of Silver Bath,*" by Mr. Deane.

Jan. 10th, 1858, "*Historical Sketch of the Photographic Art, its present-influences and prospective development, application, and uses,*" by Mr. Hepworth.

We are indebted to the kindness of the proprietor and editor of the *Liverpool and Manchester Photographic Journal* for the publication of these papers, *in extenso*, in their useful and interesting periodical.

Discussions of considerable interest on the subject of the papers and on other questions have taken place, and the Council venture to hope that the members have been mutually benefitted by the information that has thus been elicited.

It was not, however, contemplated by the original promoters, that a formal paper should be procured for every meeting as an indispensable requisite, seeing that in such cases the burden falls, as a general rule, on a few individual members, causes much anxiety and labour to the managing committee, and must, when this source of interest is *alone* looked to, inevitably end in a short time in a breaking up of the Society.

It should not be lost sight of, that one of the main objects of the Association was to afford advice and encouragement to its individual members, and this might be attained to a much greater extent than has hitherto been the case, and would at the same time contribute to the interest of the meetings, if members would bring with them specimens, which would illustrate good or bad results in their practice. Many a beginner has laboured long and anxiously to overcome difficulties or to attain desired effects, which might have been easily secured by a few words of advice from more experienced manipulators.

The financial account of the Society for the year ending 14th April, 1858, shews a balance in hand of £2 1s. 6d.

It is very gratifying to the Council to be thus able to lay before the members the results of the first year's experience, shewing that even with a comparatively small number of members the objects of the Association are attainable at a moderate cost.

After the reading and adoption of the above report an interesting discussion was excited by a question put to the members by Mr. Wardley, respecting the probable cause of the frequent separation of the collodion film when immersed in the aceto-nitrate bath used for the excitation of collodio-albumen plates, but which was perfectly adherent to the glass when excited in the ordinary positive bath; much contrariety of opinion was expressed, but the general idea was that acids have invariably a tendency to render the film contractible, and that alkalies have the contrary effect; this is in some degree borne out by the fact that negative developers, which generally contain a considerable amount of acid, almost constantly loosen the film, and the collodion iodised by alkaline iodides give a film more free from reticulation than when metallic iodides are employed.

Thanks having been voted to the President, Vice-President, Treasurer, Hon. Sec., and Members of the Council, for their past services, the meeting terminated.

The next ordinary meeting will be held on the second Wednesday in May, when a paper will be read by Mr. Wardley, on "*The Waxed Paper Process.*"

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

A MEETING of the members of this Society was held on the evening of Tuesday, April 27th, at the Oddfellows' Hall. The chair was occupied by WILLIAM HOWELL, Esq., one of the Vice-Presidents.

The Rev. WM. LAW, of Marston Rectory, an honorary member of the Society, read a paper entitled, "*A Few Stray Notes from Memoranda of Photographic Difficulties.*"

He commenced by remarking on the importance of their meeting to report and exhibit failures and difficulties, however offensive it might be to the *amour propre*. A hospital for lame photographers would seldom want occupants, and yet the judicious care of such doctors in the art as Birmingham affords ought to be gradually bringing it into more healthy condition. What he wished to see was a committee composed, say of twelve gentlemen, men of sound scientific acquirements, good chemists, and skilful in photographic manipulation, who should test the value of the suggestions and discoveries continually brought before the public. Such a tribunal might give offence to some, but this would soon evaporate, and the benefit to photographers would be great and lasting. Before such a tribunal mere empirics would find their proper level, the wide spread dissemination of unsound formulæ would be ended, and needless trouble and expense be saved. Proceeding with the subject of his paper, Mr. Law said that probably the choice of processes, either for portraiture or landscape work, where they had no dark operating room, presented one great difficulty to photographers. The chief desideratum seemed to be a dry process possessing the characteristic qualities of collodion. Whether any dry film will ever be discovered in which the iodide of silver is so *united*, and yet so ready to be disturbed by the momentary gleam of light as in moist collodion, seems problematical; but it is encouraging to know that amongst English photographers the discovery of such a process is considered quite within the limits of probability. He was happy to say that in a letter recently received from Dr. Hill Norris, of Birmingham, that gentleman mentioned that he was not without a hope of ere long accomplishing this desideratum. Before going farther he (Mr. Law) might dispose of one difficulty, namely, that of selecting a really workable and certain dry process. In giving his own individual preference to some, he begged not to be understood as speaking to the disparagement of others. He had at different times experimented with almost all, and in every instance in which the *rationale* of the process seemed to rest on a philosophical and sound basis, he had succeeded in obtaining satisfactory results. Of all the wet processes, Mr. Shadbolt's was undoubtedly the best. The meta-gelatine process is good, but there is trouble in the boiling and re-boiling. It was important that the free nitrate used in any of these processes should be washed off, as the leaving of the slightest portion on the film would render the plates exceedingly liable to stain. The gelatine process of Dr. Hill Norris, and the discovery of a collodion with the requisite qualities for its use in connection with the process, were subjects well worthy of comment. From his own recent experiments he could fully confirm all that was said regarding their certainty, if only the slightest knowledge of photographic manipulation were combined with ordinary care. The difficulty of selection seemed to be betwixt this process and that of Taupenot. The results were the same, though the latter process was a trifle superior to the other in sensitiveness, but it was right to mention that he did not follow the doctor's directions, having used gallo-nitrate of silver for the bath. The dry collodion plate was fully developed in half the time required by collodio-albumen.

Mr. Law here read a letter he had that morning received from Mr. Keene, of Leamington, in reference to the new process discovered by Mr. Fothergill, which he said he had no doubt would soon supersede the other dry processes. With regard to the selection of a dry process for field work, there could be no doubt that paper possessed advantages they could never have in glass; but, after all, he would rather run the risk than have the granulation which always accompanied a picture produced from a paper negative. For ordinary use, Turner's common paper was preferable, because, if you succeeded in getting a picture, the after process of waxing is very easy; while, if you do not succeed, you save yourself a monstrous deal of trouble and vexation. His (Mr. Law's) favourite process was the waxed paper process. He immersed Turner's negative paper (the patent Talbot) in a solution consisting of odide of potassium, with bromine. It was left there for about two hours, and was then taken out and dried, and sensitised upon the usual bath for waxed paper.

He produced a number of pictures to shew the beautiful definitions he had thus obtained. He also produced and explained a developing frame, for enabling the fluid to run evenly over the plate; a modification of Crookes's albumen filterer, indispensable to those who work Taupenot's process; an apparatus for securing absolute contact of the paper with the negative; a frame for draining collodio-albumen pictures; and a new camera box of most compact and complete construction.

At the conclusion of Mr. Law's paper and experiments (of which this is a very inadequate sketch, owing to the proximity of the meeting to the time we go to press), a vote of thanks was passed to the reverend gentleman, on the motion of Mr. **Osborn**, seconded by Mr. **Morris**.

Mr. **Morris** then introduced an American solar camera, for enlarging photographs, kindly lent him for the occasion, by Mr. Atkinson, of Liverpool, the mode of operating with which he explained. As Mr. Law remarked, there seemed to be nothing about the instrument to account for its cost (£20), and its probable manufacture for less than one-fourth that amount was hinted at. Mr. Morris also produced an invention of Mr. Atkinson's, for throwing a halo of any shape round the figure; and one of Voigtlander's lenses, capable of producing a fourteen-inch picture.

A vote of thanks to Mr. Morris and Mr. Atkinson closed the proceedings.

A MODIFIED DRY PROCESS,

By J. Glover.

Being rather late for the next publication, I must necessarily be brief, but shall be happy to supply any further information.

COLLODION.

From pyroxyline prepared at a high temperature, and in contact with the acids longer than usually recommended, with full proportion of alcohol. To one ounce of plain collodion two grains iodide of ammonium, one-and-a-half grains iodide potassium, half a grain bromide ammonium, and one drop saturated tincture of iodine: iodised at least ten days before use.

PRESERVATIVE FLUID.

120 grains gelatine, twenty grains citric acid, sixty grains gum arabic, two fluid drachms honey: dissolved in two ounces distilled water; boiled slowly in a flask twenty minutes, cooled, and again boiled five minutes. Make up the volume with distilled water to twelve ounces. When cool, add half an ounce alcohol, containing two grains camphor dissolved. Stand two days, and filter just before use.

DEVELOPER.

Two and a-half grains pyrogallic acid, ten minims glacial acetic acid, one quarter grain citric acid, ten minims alcohol, and one ounce water.

SILVER SOLUTION.

Eight grains of nitrate of silver to one ounce of water.

FIXING.

Four grains cyanide potassium, and one ounce of water used as a bath.

MODE OF MANIPULATION.

Make sensitive in the usual way, allowing the collodion to set to the maximum extent before immersion. Drain one minute, pour the first portion of preservative on at one edge, then flow slowly across the plate, and off at the opposite edge into the waste dish. Place the plate on a levelling-stand, cover with the second portion of preservative, allow it to rest three minutes, then run the solution round the plate several times, and off into the measure, to be used as the first portion for the succeeding plate: drain from one corner: when dry store in dark frames or boxes. Prepare the plates twelve hours before exposure.

TO DEVELOP.

Place on the levelling-stand, pour over the silver solution, and off again; rest the plate horizontally one minute, then apply the developer and proceed as with wet collodion, adding silver as required. The development takes from ten to twenty minutes.

The chief features in this process are—a hard glassy surface, giving exquisite detail, good keeping qualities, tolerable sensitiveness, easy development, freedom from stains and blisters, if prepared as directed, wide range of exposure, and last, not least, almost absolute certainty in the results.

ON THE PRODUCTION OF DIRECT POSITIVES—ON PRINTING BY THE SALTS OF THE URANIC AND FERRIC OXIDES, WITH OBSERVATIONS CLIMETIC AND CHEMICAL.

By C. J. Burnett.

(Continued from page 101.*)*

The so far inferior results (almost failures) of my protosulphate experiments may be partly owing to the oxides in it as bought, being partly in the more active (or cyanotropic form, to coin a word for our momentary accommodation.) It is a point to be ascertained, in which form it exists in each salt, and whether it is capable of existing in both, in combination with different acids.

The effect of the red rays, which are probably capable of not only undoing the allotropic change produced in substances by the blue rays, but of producing an allotropism of another or opposite character, ought to be investigated.

We must also carefully examine how far the new activity of the ferrous oxide in these cases is due to the looser absorption (?) before alluded to.

As we have been speaking of the use of ferric and uranic papers, I think it well to remark that it does seem strange that the published experiments of Mr. Hunt, Sir J. Herschel, and others, with regard to ferric salts, and mine with regard to uranic salts, should not have directed the attention of *practical* photographers to the employment of iron with the after-development by silver salts and gold, &c., or by mixtures of silver salts with such other substances as might further promote the reduction; and uranium salts, not only for *positive printing*, but also for use in the camera. Ferric salts would have very great advantage in cheapness over silver salts for preparation; and if our negatives are accidentally mismanaged in any way, if we find, for instance, on trying one or two, that they have been under or over exposed, there is, at all events, little loss of money. I intend giving the ferric and uranic salts a fair trial next summer with a camera which I had constructed last year* partly with a view to this, having a slide adapted to contain, and enable us to unroll as it is wanted, paper enough for a large number of pictures,† so as to avoid the troublesome shifting of papers when we are at work. I propose among other plans connected with this, the charging the paper in the coil with the sensitive salt under pressure, as proposed some years ago by Mr. Stewart, by first exhausting, and then re-admitting the air. The developing silver solution might also, perhaps, be applied in a similar way, or by first exhausting the air, and then admitting the solution into the cylinder. We might try various salts of silver, as well as the nitrate and ammonio-nitrate for developers; and some of my experiments point to the use of protosalts as accelerators or stimulants here, either by mixing them with the silver developing solution (with addition of a little acetic, formic, citric, nitric, or other acid), or by transferring the negative, as soon as it has imbibed sufficient silver from the silver bath, to a stimulating solution of acidulated protosulphate of iron, (gallic acid being also compatible with the uranium salts,) or cuprous or uranous salt. When using the paper coils I have spoken of, for negative-taking, they may be spread out during development. I have already alluded to the possible use of an unsolarised protosalt of iron, or uranium, or copper mixture, with the sesqui-salt, in paper preparation in both ferric and uranic silver development processes, as well as in the preparation of argentine papers.

To enter a little further into particulars, I may mention that, in preparing uranic or ferric papers we may take our choice of two modes. The first being to use a readily soluble neutral salt or this bin-acid salt, or a solution of ammonio-acid salt, where the neutral is not sufficiently soluble, as is the case with many of the vegetable acids, *e. g.* in uranic paper-preparation I have used, and been successful, with the neutral and bin-acid, or ammonio-acid salts formed by the nitric chloric, phosphoric, hydrochloric, hydrofluoric, hydrobromic citric, formic, acetic, oxalic, tartaric, succinic, benzoic, and with ferric oxide we may use the ammonio or the bin-acid salts; or, as I have found out, the per-nitrate salt, and the second, (though here I speak less from actual experiment,) being to employ an insoluble salt of the sesqui-oxide, deposited on the paper by the application of the successive baths, the one containing the nitrate, acetate, hydrochlorate, or some very soluble salt of uranic (or ferric-nitrate oxide), and the other acid, or salt of an acid, as benzoic, succinic, or oxalic, giving an insoluble precipitate with the sesqui-oxide.

(To be continued.)

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* I understand that my contrivance of December, 1856, has been in some respects anticipated by one of Mr. Melluish's, but I do not know to what extent, as I have not yet seen his description. The *plan of* mine will be found in *Photographic Notes* of last year.

† Paper is originally made in most cases in the web, and only afterwards cut down.

ON A NEW ACTION OF LIGHT,

By M. Niepce de St. Victor.

(Concluded from page 76.)

The salts of uranium are very fluorescent, as Mr. Stokes has discovered, and the crystallised nitrate of uranium is, in addition, very phosphorescent by percussion; but I have proved with the electric light that pure tartaric acid is not at all fluorescent, and that it does not become luminous under the action of the more refrangible rays of the spectrum obtained with the electric or solar light; neither have I been able to discover any phosphorescence of the crystals of tartaric acid. It is not then to phosphorescence or fluorescence alone that we can attribute the remarkable property which the solutions of uranium and tartaric acid possess, of in some way becoming saturated with light.

I have coated pieces of cardboard with many different substances, and obtained very variable results. With some, the difference of impression between the insolated and non-insolated portions, when both have been treated with a solution of nitrate of silver, was very great; with others the difference was scarcely sensible; finally, with others the difference was inappreciable; notwithstanding that they receive impressions very rapidly under the influence of light.

I will cite in the first category, citric acid, oxalic acid, sulphate of alumina, citrate of iron, the iodides and bromides, arsenious acid, neutral tartrate of potash, lactic acid, and the animal skin, which participates in the properties of the salts of uranium and tartaric acid.

In the second, the sulphate of quinine, the alcoholic tinctures of nettle (chlorophyll), of *Datura stramonium*, of Curcuma, the infusion in cold water of the bark of the horse-chestnut tree (æsculine), sugar, collodion, gelatine, and starch.

And finally I have thoroughly proved that the bodies which best preserve the activity which insolation gives them, are, except the salts of uranium, those *least* disposed to *fluorescence*.

In the third category, the chlorides, the acetate of morphia, and the phosphate of ammonia (which, under the developing action of the nitrate of silver, give very pure black tones), prussic acid, quinate of lime, and morphine (which give maroon browns).

The experiments I have described in this paper demonstrate, I believe, in the plainest manner, that light communicates to certain substances upon which it has fallen a real activity; or rather that certain bodies have the property of storing up light in a state of persistent activity.

The quantity of persistent activity is more or less, according to the nature of the substance, the greater or less duration of the exposure, the atmospheric circumstances under which the exposure takes place, &c. It has its limits—that is to say, each substance has its maximum of activity, and when that is attained, prolonged nsolation adds nothing more.

A body having become active from insolation, preserves for more than a day, if kept in obscurity and exposed to the air, the faculty of acting on he salts of gold and silver; it will gradually ose this property, but it may be restored to it by a new insolation, provided always that the ubstance has not been altered in its chemical omposition, as, for example, are iodides and bromides.

The paper impregnated with nitrate of uranium presents a remarkable property; it becomes oloured under the influence of light, but if placed afterwards in obscurity for some days the colour disappears, to return again if exposed to the light anew; it reduces the salts of gold and silver while it is coloured.

The persistent activity communicated to a body by the light, acts not only upon the salts of gold and silver, but upon several of the organic and inorganic substances which light affects or modifies by its direct action. Thus a body rendered active by insolation will transmit his activity by contact and in obscurity to nother body—tartaric acid, for example.

The bichromate of potash becomes, under this ame influence, insoluble in water, as it would become by its exposure to the sun; but heliographic varnish, and the gum guaiacum resist he persistent activity of paper impregnated with the salts of uranium or tartaric acid, and insolated.

I propose to examine in further experiments, whether the persistent activity will determine he combination of chlorine and hydrogen; whether it is acquired in the luminous vacuum, &c., &c. An engraving wetted and insolated eproduces itself very well on the sensitive aper, but if it be covered by a film of water quelques millimètres) it does not do so, even in solution of a salt of uranium or of tartarie acid.

Gelatine mixed with a salt of uranium, and xposed to the light, becomes insoluble, as if it ad been mixed with bichromate of potash.

I have verified this remarkable fact, that the white of an engraving, impregnated with salt f uranium or tartaric acid, and insolated, imrints itself very well upon sensitive paper repared with chloride of silver, without the lacks leaving the least trace of any action. The same may be said of a design traced in *aqueous ink*, and of a sheet of paper blackened with lampblack.

It will be interesting to study the action of the solar spectrum upon a card impregnated with tartaric acid, which is not fluorescent, and does not become luminous under the influence of the ultra-violet or invisible rays. Which of the rays, after the insolation, will imprint their image most strongly, the more or the less refrangible? Experiment will decide.

The photographic proofs I have the honour to present to the Academy have been made by M. Victor Plumier, a very able photographer; he succeeded on the first attempt in the application of my new process for printing positives, which induces me to hope that it may be brought into practice without trouble, and will constitute a desirable advance.

Perhaps I may be allowed to point out, in conclusion, a mode of reproducing engravings with the aid of the vapours of phosphorus, which, as I stated in a memoir, published in 1847, have the property of attaching themselves to, and condensing upon the black to the exclusion of the white parts.

The engraving to be copied is to be exposed to the vapours of phosphorus burning slowly in the air,—the blacks alone become saturated with phosphuretted vapours; then applied upon a sheet of sensitive paper prepared with chloride of silver; after remaining in contact a quarter of an hour, the engraving is represented upon the paper by a design formed of phosphide of silver, which, when it is sufficiently vigorous, resists the action of chemical agents diluted with water. The best mode of operating consists in placing the engraving in a box, in front of a card, the surface of which has been sufficiently rubbed with a stick of phosphorus, and which lines one of the sides of the box: it is necessary to rub anew at each operation, because if the phosphorus is red it produces no effect: a film of water 4-10ths of an inch or more in thickness does not arrest the deposit, or the action of the vapours of phosphorus upon the sensitive paper; the action exercises itself even through "Chinese paper"—that is to say, if an engraving on paper of that description be placed against a sheet of sensitive paper, and the whole placed in the box in front of the phosphorescent side, a negative image of the engraving will be obtained, as if the blacks had acted as a screen, and the whites alone had given a passage to the vapours of the phosphorus which acted upon the sensitive paper. Nevertheless, if the exposure be too much prolonged, the blacks will in their turn imprint themselves, and will even predominate.

The vapour of sulphur produces analogous effects, and gives a reproduction of the print designed with the sulphide of silver, but the picture is not very stable.

PROCESS FOR POSITIVES, WITH THE SALTS OF URANIUM.

By H. De la Blanchere.

M. Blanchere, who assisted M. Nièpce de St. Victor in the prosecution of the experiments resulting in the discoveries announced in our last, has published the formula for the production of the uranium pictures as used by him up to the present time, and we propose to give a short abstract of his instructions.

It is not considered by any means as at present perfect, but will form a foundation for further researches.

Nitrate of uranium is an acid salt of a greenish yellow hue, and is really a nitrate of the sesquioxide, the construction being,—

$$U^2 O^3 + N. O^5 + 6H. O.$$

It is almost as soluble in ether as in water, while the action of light appears to be similar with regard to all the other salts of uranium as with the nitrate, which is rendered insoluble when affected by the chemical rays. It is therefore advisable to keep the bottles containing the salts in solution carefully excluded from daylight, although it is certain that the dry crystals are absolutely insensitive to the action of light.

The paper employed should be *unsized*, and it is indispensable that for several days previously to its preparation, it shall have been carefully withdrawn from the influence of light by being enclosed in a box or drawer.

In one ounce of *distilled* water dissolve one hundred grains of nitrate of uranium, filter, and preserve the golden yellow coloured solutions in a stoppered bottle kept in the dark.

The paper is to be immersed in or floated on the solution for five minutes, which will penetrate completely through the paper; it would, however, be desirable, if possible, to keep it as much on the surface as can be managed, to obviate a tendency in the proof to become veiled by the substance of the paper.

The paper may be hung up to dry, freely exposed to the air, but in the dark, in which condition it will keep indefinitely.

Expose under a negative from one to ten minutes in the sunshine, or from fifteen minutes to an hour in the shade; from three to five minutes in the sun will suffice on an average under a collodion negative of ordinary density.

The beauty of the proof depends especially upon the time of exposure, and without contradiction it is the most delicate part of the process. It is necessary to give a sufficient exposure, but not to overdo it, because by allowing it to remain a little in the developing bath the image gains brilliancy.

The yellow colour of the paper should be at least of a lemon tint, and by passing it twice through the uranium bath, the quantity imbibed is augmented, and at the same time the sensibility of the paper in equal proportion; comparative experiments leave no doubt upon this point.

The tint is altered where the light has acted, and becomes of a brownish red, which is more perceptible on looking through the paper than by examining the surface, and its degree of intensity serves nearly always (but not invariably) as a guide to the amount of the luminous impression. When in proper condition the image should be slightly visible when removed from the pressure frame, and if kept in darkness, can be developed after the lapse of twenty-four, or even of forty-eight hours.

The paper is to be plunged rapidly into a bath composed of distilled water one ounce, crystallised nitrate of silver, *slightly acid*, thirty grains. The proof will immediately appear, and be completely out in from thirty to forty seconds. Remove it quickly, and wash well in two or three changes of distilled water, when it becomes permanently fixed, and unaffected even by boiling cyanide of potassium.

If the nitrate of silver bath is not acidulated, in removing the proof to immerse it in the water bath, the darkest parts change to a lemon yellow colour, which, however, disappears on toning with chloride of gold, or even by heating before a brisk fire in order to dry the paper, and these parts in the latter case assume a vigorous brownish black tone. The toning with chloride of gold gives to all the proofs a violet tint, similar to that of pictures obtained in the ordinary manner.

The chloride of gold bath should be made by dissolving one grain of the salt in one ounce of distilled water, and if the picture on its removal from the pressure frame be immersed therein, it will be developed of a somewhat cold blue colour, but the exposure should be almost double of that required for the silver bath. The true use of the gold bath, however, is to tone the pictures produced previously by that of the nitrate of silver, and as chlorine has a tendency to dissolve the uranium salt, even i not exposed to light, it assists in brightening those pictures that are somewhat foggy.

A formula is given in which the bichloride o mercury is employed, in conjunction with a silver bath, but the exposure required is thrice that for the first quoted method of operating, and, moreover, the half tones of the picture materially suffer.

General Remarks:—If the exposure has been too great, or the immersion in the developing bath too prolonged, so that the lights have become somewhat veiled, an improvement may be effected by washing with water slightly acidulated with hydrochloric acid.

The acidity of the nitrate of uranium immediately coagulates albumen into which it is thrown. Papier Saxe has been employed, after being floated for five minutes upon a solution of gelatine fifteen grains in one ounce of warm water, as also upon albumen, which has been subsequently floated fo ten minutes upon the bath of nitrate of uranium. The proof is much more on the surface than with the other method, and it seems also more vigorous and sharp. It presents also this remark able fact, that the *image is not perceptible* when taken out of the pressure frame, but develop and tones with rapidity, equal to that with the paper prepared as before described.

THE STEREOMONOSCOPE.

We noticed some short time ago that Mr. Claude had invented a new instrument in connection with stereoscopic phenomena; the following account o this instrument, which was exhibited at the Roya Society on the 15th April, is extracted from th *Athenæum*:—

"At the meeting of the Royal Society, on the 15th ult Mr. Claudet presented a new optical instrument of hi invention, called the Stereomonoscope, by which, as it name implies, a single picture produces the stereoscopi illusion. In the centre of a large black screen there is space filled with a square of ground glass, upon which by some light managed behind the screen, is thrown magnified photographic image representing a landscape a portrait, or any other object. When we look naturally t that picture, with the two eyes, without the help of ny optical instrument, an extraordinary phenomenon akes place: we see the picture in perfect relief as when ve look at two different pictures through a stereoscope. t is not necessary to be at a fixed distance from the picure: it may be examined as well at ten feet as at one oot, as an ordinary picture, without the least fatigue to he eyes. Although considerably enlarged by the instrunent itself, we may magnify the picture still more by sing large convex lenses; and two or three persons at t once can examine it with the greatest ease, being able, vhile looking, to exchange any remarks, or express the ensations suggested by the picture,—an advantage which s denied by the use of the common stercoscope. By this emarkable discovery, Mr. Claudet has solved a problem vhich has always been considered as an impossibility by cientific men,—for the Stereomonoscope, by its very ame, must sound like a paradox to the ears of all those vho are versed in the knowledge of the principles of inocular vision, until they have had the opportunity of epeating the experiments by which the author has found new fact which they had not noticed or explained before. This new fact is, that the image on the ground glass of he camera obscura produces the illusion of relief. But he phenomenon does not take place if the image is eceived on paper. When the medium is ground glass, he rays refracted by the various points of the lens upon hat surface, are only visible when they are incident in a ine coinciding with the optic axis. So that the rays merging from the ground glass, and entering the right ye, are only those which have been refracted obliquely n the same direction, by the left side of the object-glass; nd those entering the left eye, are only those which re refracted by the right side of the object-glass; conseuently, both eyes have a different view and perspective f the object represented on the ground glass, and the ingle image is, in point of fact, the result of two images, ach only visible to one eye, and invisible to the other. This is the main point of Mr. Claudet's discovery, which annot be fully understood without reading the paper vhich he communicated on that subject to the Royal ociety, the 8th May, 1857 (see *Proceedings of the Royal ociety* for May, 1857), and without repeating the experinents described in that paper. The Stereomonoscope is ounded on the same principles: it is nothing more than camera obscura, before which are placed the two mages of a stereoscopic slide, and by means of two bject-glasses, sufficiently separated, the two images are efracted on the same space, at the focus of the camera bscura on the ground glass, where they coincide. By he same laws we have alluded to before, the right picture s seen only by the left eye, and the left picture by the ight eye; so that, although only one picture appears epresented on the ground glass, each eye sees on the ame spot a different picture having its particular perpective, and, consequently, in order to obtain a single ision, the eyes have to converge differently to bring conecutively in the centre of both retinas the different imilar points of the two pictures according to their orizontal separation on the ground glass, the criterion of heir respective distances. This alteration of the conergence of the optic axis, according to the distances of he various planes, gives the same sensation of relief we btain when we look at the natural objects, or at their hotographic representations. The invention of Mr. laudet, in our opinion, is calculated to produce a revoution in the application of the splendid discovery of rofessor Wheatstone to the exhibition of photographic ictures. At all events, it is one of the most curious acts connected with modern discoveries in optics,—eserving the attention of philosophers and the admiraion of the public. We recommend the lovers of the rts and sciences to go and see the Stereomonoscope vhich is exhibited in Mr. Claudet's photographic estabshment, Regent-street."

ROCESS FOR PRESERVING THE SENSITIVENESS OF COLLODION PLATES.

TO THE EDITOR OF THE TIMES.

SIR,—Having lately made a series of experiments o find out some less complicated process than any t present in use for preserving the sensitiveness of ollodion plates, I have discovered one which is so imple that I venture to hope you will deem it of sufficient value to the photographic world to give it publicity through your widely-circulating journal.

The plate, being collodionised and sensitised in the usual manner, is washed with rain water, and after draining for about half a minute, I pour on the collodion film some plain albumen, which has been obtained by well beating up the white of one egg with a quarter of an ounce of water, and allowing to subside. After half a minute the albumen is washed off under a gentle stream of rain water, enough remaining in the pores of the collodion to answer the purpose of preserving its sensitiveness. The plate is then allowed to dry, and is fit for use.

The advantages of this process are:—

1. Absence of blisters.
2. Absence of bubbles in the albumen, these being washed off with the surface albumen.
3. The resulting negative is remarkable for softness.
4. The plate only requires once sensitising.
5. With some collodions, which will be mentioned in the next number of the *Journal of Photography*, much less exposure is required than by any other keeping process known to me.
6. The negative only requires a few minutes in developing by using (after previously moistening the plate) from 1½ to 2 grains of pyrogallic acid to the ounce of water, and the usual amount of acetic acid.

The only disadvantage I have yet encountered (and that not often) is a tendency of the development to get under the film. As yet, however, I have only had one picture slightly impaired, but not soiled by that circumstance, and I think the evil may be entirely prevented by rubbing the edge of the plate, after the last washing, with the finger dipped in a little albumen.

From six to nine drops of liquor ammoniæ added to each egg, seem to increase the sensitiveness of the film, but, at present, I recommend trying the plain albumen.

I believe plates may be kept an indefinite period when prepared with care. I have kept some a week, without the slightest loss of sensitiveness.

I have the honour to subscribe myself yours obediently, THOMAS FOTHERGILL.

8, *Inverness-road, London, April* 24.

CORRESPONDENCE.

☞ *All* EDITORIAL *Communications*, BOOKS FOR REVIEW, *&c., should be forwarded to the Editor*, GEORGE SHADBOLT, ESQ., 2, *Upper Hornsey Rise, N., Middlesex. All* ADVERTISEMENTS *and* LETTERS *on the* BUSINESS *of this* Journal *should be addressed to the* PUBLISHER, 32, *Castle Street, Liverpool.*

POSITIVES AND NEGATIVES.—PRODUCING TRANSPARENCIES.—NEW VARNISH.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—I was prevented from sending my method of obtaining transparencies in time for insertion in your last number, but now take the first opportunity of doing so. I enclose you a large print from a negative, taken with my collodion in *positive time*, the light being very bad at the time it was taken; also a stereoscopic view of the river side, and another of the oil cake mill in this place, which was taken in three seconds on Good Friday, the plate having been kept two hours before exposure. The method employed was just the same as the one I now send for transparencies, which is at once simple and certain in results. The valuable properties of honey, in photography, as a preservative, photographers have reason to thank you for suggesting.

I have taken views in less than a second with it, and can only say, that with this process it is the easiest thing possible to get good intense negatives with a thin collodion.

The reason I did not give the composition of my collodion in my last letter, is that I manufacture it for sale, but I send printed instructions for making it to those who prefer making their own (see advertisement). But photographers generally will find it difficult to make it well, as it requires a good deal of experience and observation to obtain really good collodion; one person may mix the ingredients together, and another may mix them in exactly the same proportions, and yet obtain quite different results, owing to the strength and purity of the chemicals differing, especially with regard to the pyroxyline. I shall be happy to give you a sample of the collodion if you would like to try it. My meaning respecting the strengthening of pictures after they are developed and fixed, refers only to positives. I have always found that a positive that has been strengthened after having been fixed, becomes too intense in the high lights, and not enough so in the shades, but such would not have been the case had the picture been developed for a negative at once, with the same exposure. My method is to develop with an iron developer, until the detail just begins to shew itself in the shades, then wash off well, free from any trace of the iron solution, and continue the development until intense enough, by pouring on and off a portion of the following solution, with a few drops of the silver bath added to it just before pouring on. It is of great consequence that the picture and measure used for containing the solution, be quite free from any iron solution, and the fresher the solution the better will be the results. Water one ounce, pyrogallic acid two grains, citric acid one grain, acetic acid (not glacial), ten minims, alcohol twenty minims. This will be found to give any intensity desired, universally good results, and I have used it for two years.

I will now describe my method for producing transparencies. In the first place prepare the following solutions:—

No. 1.—Pure honey two parts, in distilled water three parts; mix and filter quite clear.

No. 2.—A saturated solution of gallic acid in distilled water.

No. 3.—Distilled water one ounce, nitrate of silver fifteen grains; dissolve, then add sugar of lead fifteen grains; shake, and filter from the curdy precipitate.

No. 4.—Spirits of wine one ounce, gum juniper one and three quarter drachms, gum Thus two and a half scruples.

Having arranged all your bottles, &c. on a table. turn down the gas, which should have an argand burner, with only one glass chimney, no outer glass.

Take a piece of common glass the required size, and coat it with collodion; immerse in the bath of nitrate of silver thirty grains to the ounce of water for about a minute, lifting the plate up and down several times after it has been in about a quarter of a minute, and remove as soon as the solution flows evenly; wipe the back and bottom edge of the plate with a cloth, and pour on enough of No. 1 to half cover the plate, and keep it moving about until it flows evenly, then drain off, and wipe the back, &c. as before. Now cut two narrow strips of cartridge paper, and lay along the two opposite sides of the prepared plate, and lay the negative face downwards on the two slips, so that the two coated sides come together, being only divided by the slips of paper. Now hold them firmly together, parallel and in a line with the gas, and allow the light to shine through the negative for thirty or forty seconds. You must have some one to hold a looking glass at the back of the gas, to reflect all the light on to the plate. Now turn down the gas, and proceed to develop.

Pour on No. 2, or lay the plate in a dish containin it for a minute; there will be no image seen, o scarcely any, if it has not been over exposed. Tak it out, and pour over it half an ounce of No. 2, wit one drachm of No. 3, mixed together in a measur keeping it moving about until intense enough; the wash and fix with hyposulphite of soda, and was well; then dry at the fire, and when cool pour ove the plate some of the varnish No. 4. As soon as i has ceased dripping, breathe all over the plate, an the varnish will immediately become like groun glass, and will keep so if dried without heat, but i heat is applied it dries transparent; the former i for stereoscopes, and the latter for magic lantern These may be coloured over the varnish, and whe nicely done, the effect is beautiful.

I am surprised that opticians and those intereste in phantasmagoria lanterns, do not direct their atter tion more to this interesting branch of photograph as it can be done at night, in any weather, whe photography out of doors is out of the questio besides being a nice amusement of an evening. would here direct the attention to the varnish No. which is a first-rate substitute for ground glass. gives a coating not easily rubbed off, and witho grain makes it very suitable for focussing on in ca of breaking the focussing screen in cameras. enclose you a portion of a transparency done in th way, so that you may judge of the effect.

Trusting this may give an impulse to this branc of the art,

I have the honour to remain, dear Sir,
Yours faithfully,
ARTHUR MADDISO

Berlin House,
Huntingdon, April 7th, 1858.

POSITIVE AND NEGATIVE COLLODION

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As our *Journal* of the 15th March came la to hand, we were unable to look over it till yesterda and as we observed that you were somewhat sceptic relative to a statement there made by Mr. Maddiso that his collodion is adapted equally well for positiv and negatives, or rather you doubt that *any collodio* would answer perfectly well for both purposes, w think it but justice to our fellow readers of the *Journ* to observe that we have used Mr. Maddison's coll dion for both positive and negative processes, wi success; indeed we regard it as superior to any the collodions we have tried for negatives, as a amount of intensity can be got in the high light without endangering the shadows, which remain clear as the glass itself; and yet this collodion known to hold a very exalted position among t profession *for positives*. Perhaps it might fairly questioned, if we have not been laying too gre stress upon the terms "positive" and "negative our experience leads to believe this, as we find ma of the positive collodions will produce tolerably go negatives, although we certainly have not found a equal to the above-named in this respect.

Are we not gradually arriving at the conclusio that we have been uselessly incumbering the art wi unnecessary complications of "positive this," a "negative that?" We all know that only a f months ago most photographers believed that n negative could be good unless it had been develop by pyrogallic acid, or at least gallic acid. Now turns out after all that the proto-salts of iron w soon replace these agents for negatives, just as th have done for positives, and thus reduce the numb of bottles that crowd the shelves of our photograph dark rooms, to our serious annoyance.

And now, since we have a medium of communic tion with each other through the *Journal*, let each us add our mite of experience towards the attai t of an uncomplicated yet effective method of tising the art.

We remain, Sir, yours respectfully,

kton-on-Tees, J. & T. CLARKE.
April 10*th*, 1858.

/e publish the two preceding letters entire, in uance of our principle of allowing the *utmost* *lom of discussion*, but we must also accompany by a few comments. We fear both our corre- dents have fallen into the very common error of paring themselves with themselves, instead of others. We are *more sceptical than ever* of the ability of any one collodion being *equally* adapted oth positive and negative pictures of a *high class* rtainly the specimens sent by Mr. Maddison are *ery weak* as negatives, the two stereoscopic ones cially. The large portrait is stated to have been a in *positive time*, but the length of exposure is given. Although this picture is more perfect as gative, it still has the appearance of being *under* *sed*, the details in the shadows being deficient. Ir. Maddison manufactures collodion for sale, wishes to make any remarks upon it *without* *ig the formula for its composition*, the advertising mns alone are the most appropriate place for 1, but in the body of the *Journal* all should meet an equal footing. Mr. Maddison's method of lopment as here given somewhat resembles in ciple that published by Mr. Hardwich, in our ber of 15th March, page 74, in combination that of M. Frank, which appeared in our last; the details as given by Mr. Hardwich are erable in our opinion. Mr. Maddison, however, ars to have practised it for the last two years, equently for a longer time than Mr. Hardwich, the two coinciding results are highly satisfactory. ie mode of printing transparencies here recom- ded is very old, having been published in this *nal* shortly after its commencement; any pre- ative solution, being, however, quite unnecessary. results obtained when a slip of paper intervenes never so good as when dry plates are used in act with the negative, the former being deficient iarpness.

idging from the small specimen received (about ach square), the varnish alluded to seems to pro- a pleasing and effective result; it is, however, somewhat yellowish hue, but this does not in opinion detract from the appearance of the sparencies in the stereoscope—in fact, in some ects it is an improvement.]

OCULAR AND STEREOSCOPIC VISION.

the Editor of the Liverpool and Manchester Photographic Journal.

EAR SIR,—In reply to your query respecting an rument which has lately occupied some attention, ied the *Telestereoscope*, I have to state that I e a similar instrument upwards of five years ago. onsisted simply of four rectangular pieces of ing-glass mounted upon a flat staff of wood four long; the two pieces fixed in the middle of the were inclined at an angle of 45°, the vertex g towards the observer. Two eye-holes, about inch in diameter, were cut through the wood to it the reflected images from the fixed mirrors into eyes. Each mirror at the *end* of the staff was ;ed at its base, in order to adjust the degree of vard inclination for objects more or less distant, to direct the first reflected image on to the two rors of 45°, and from thence to the eyes.

ome of the effects of this piece of apparatus were remarkable: objects so far distant that the ordi- angle of vision of the two eyes was not sufficient nable one to appeciate their size and relative tions, were brought into high stereoscopic relief, ngly persuading one of the fact that for long ranges, at least, there is considerable advantage in taking a *hippopotamus* view of distant objects. On the other hand, the use of the instrument on near objects was instructive, *but not satisfactory*, in producing a true stereoscopic effect—for example, on standing at the end of a row of pillars, or trees, both sides were seen at the same time, producing a double image. The outer minor required to be adjusted to a range of at least fifty yards before agreeable or correct vision could be obtained.

These adjustments proved to be a matter of such nicety that it occurred to me the instrument might be usefully employed as a means of approximately measuring short inaccessible distances, up to about 1000 yards, by attaching a lever index to the arrangement for simultaneously moving the outer mirrors, which lever would point out the distances, upon a properly divided scale. I have also now before me another instrument constructed about the same period. This is just the converse of the preceding. The vision from the two eyes being carried *inwards* or brought together by means of reflecting prisms through a small aperture over the bridge of the nose. This apparatus is figured and described in the transactions of the Microspical Society, contained in the *Quarterly Journal of Microscopic Science*, for May 25th, 1853, from which I quote the following passage.

"On looking through this instrument without the magnifier, a singular illusion is produced, for the vision with the two eyes is brought so nearly to a state of parallelism that they are in effect blended into one, and we so far lose the power of appreciating distance that we appear able to grasp objects several feet away from us, as the deceptions arising from monocular vision are increased, by seeking with both eyes from the same position as with one."

There has been much discussion with reference to the proper angle for obtaining stereoscopic pictures; but if the angular position from which the two subjects are represented is to be considered simply as a means of *giving the appearance of solidity and relative distance*, then, I take it, that any degree of angle that will produce the desired effect is correct and advisable. The argument against a large angle is, that we then *do not* see the objects similarly correct in size and proportion as seen with the naked eye; but that the distance between the eyes is not sufficient to meet many cases has been repeatedly shown. On looking with both eyes at a landscape, a building, across a broad river or valley, there are many conditions which enable us to form a correct idea of size and position, which cannot be included in a camera picture. There may be moving clouds in the back ground. The eye has the power of making instant comparison, by glancing quickly from object to object, and scanning the space from the feet to the place observed. Now set up the camera, and take two pictures with the lenses the same distance apart as the two eyes, the result will be a flat picture deficient in steroscopic relief, because the conditions I have referred to are wanting, for no camera lens can ever be made to give the same *panoramic* indications as the eye. I have supposed a case where even the foreground cannot be delineated. Move the camera some feet asunder for each picture and a good stereoscopic result will be obtained, free from distortion, and giving a *correct idea* of the form and size of the object. I have no hesitation in stating, that for a very distant object, whers no foreground can be shown, (such as a rock, or a ship at sea, for example,) the camera may be moved as much as ten or fifteen feet asunder with advantage. This I frequently been obliged to do in cases where, with the *usual* angle, I could not obtain any stereosopic effect at all.

I consider it simply absurd to set own *one* definite distance between the points of vision for *all* ranges; as well might we expect to obtain a stereosopic picture of the moon with the ordinary stereo-camera. In illustration I would allude to the beautiful stereoscopic pictures of the moon, by Mr. De La Rue, taken during her librations—equivalent to an angle of vision from two points exceeding *four thousand miles asunder.*—I am, dear sir, yours faithfully,

Brixton, March 20, 1858. F. H. WENHAM.

CLEANING GLASS PLATES,

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I have on hand a large number of portraits on glass, some very large; they are all on patent plate glass. They are varnished with *black* and *transparent* varnish. How can I clean them in the large way, so as to use the plates again?

Waterloo, 10th April, 1858. WINTER.

[Make a *strong* solution of common washing soda (carbonate of soda) and soak your plates in it for several days, then rub the blackened sides with a common wine-bottle *cork,* when you will find it flake off more or less; again soak for a day or two, and proceed as before. At a little more expense the black varnish may be removed at once by rubbing with a tuft of cotton dipped in turpentine or benzole, but the solution of soda should follow.—In reply to your other observation, bind each volume separately. There are a title and index for each year.]

ANSWERS TO CORRESPONDENTS.

Glasguensis.—We will consider your requirements and endeavour to give a satisfactory reply in our next.

R. N. an Amateur.—You surely cannot have read the *Journal* lately, as we have several time given answers to questions precisely similar to your own. See reply to Jas. H. Lyons, in our number for 1st April, page 90.

J. B. R.—We are again reluctantly compelled to omit your communication; it is however in type, and shall appear in our next.—Esculapius, W. Clarke, and J. M. S. shall also receive attention in our next.

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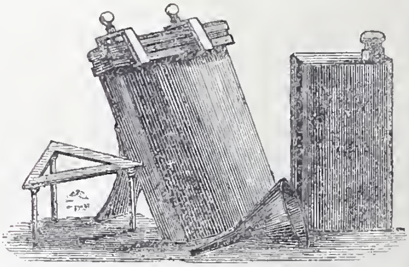

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The
Liverpool & Manchester Photographic Journal.

New Series. No. 10, Vol. II.—MAY 15, 1858.

F any of our readers have been driven almost o despair by the mishaps occurring at the nost critical moment to their very compact olding tripod stands—we mean those that are so handy that they can be taken anywhere; so smartly got up with nicely constructed screws and sockets of brilliant brass, with the wooden parts carefully rounded that they may be pleasant to the touch, and brilliant with French polish to please the eye, if any such there are amongst our readers (and we fear, alas! that they comprise a majority,) we can tell them how they can obviate the annoyance for the future. The stands we have alluded to are far too often ricketty, and from the very delicacy of their construction are easily put out of order, while their restoration is quite another matter, and not to be thought of in out-of-the-way places, which are precisely those where folding stands are supposed to be most useful. But there is "Balm in Gilead." The portable stand exhibited by Mr. Shave, at the meeting of the North London Photographic Association, of which we give a report in the present number, though noticed there in so modest a manner, is, to our mind, the very thing we have been so long seeking for. It is *really* portable, strong, steady, cheap, and, above all, if injured, the clumsiest of village carpenters could surely put it in order, while with a screw or two and a gimblet, or even with a few nails, we could, upon an emergency, dispense with a carpenter at all. We will endeavour to describe it. Each leg is composed of three pieces of ash, about three feet long, one inch wide, and half-an-inch in thickness. Supposing them to be placed all three together on edge, and in contact by their flat sides, a screw passes through all three at about six inches distance from one end, while the two *outer* pieces alone are connected together by a cross slip of the same wood being screwed to them. The central piece turns on the first named screw as a hinge, and when opened out has a bearing against the cross piece, and is kept in place by turning a brass "button," with which it is furnished, at right angles to the slip of wood, the single piece forming the lower part of the feet, while the two others are attached to the brass ring by being sprung in the usual way, and, if preferred, can be furnished with a hook of brass or iron to hold them firmly together after being so attached to the ring. There is nothing whatever in this stand to prevent its being entirely home-made, and yet it is the most efficacious of the kind we have seen. We have little doubt but some of our enterprising dealers will provide a supply for the public.

Among the new mechanical photographic luxuries we may cite the expanding and contracting diaphragm for lenses, patented in France and also in this country by MM. Maugey and Migniod. It consists of an elastic material which is so arranged that by simply turning a screw it is made to expand and contract at pleasure, and this can be done during the exposure of a plate without interfering with the operation if necessary. The amount of variation is from one to two diameters, or from one to four times in area.

Mr. Reeve, of Henrietta Street, Covent Garden, is about publishing a new monthly serial, called the *Stereoscopic Magazine*, comprised in illustrations for the book stereoscope, to be accompanied by descriptive letterpress. The photographic positives are to be produced under the able superintendence of Mr. Glaisher, the celebrated meteorologist.

Messrs. Horne and Thornthwaite are constructing landscape lenses similar to those of Professor Petzval and M. Voightlander, but termed by the makers "Caloscopic Lenses." We have by no means done with this subject yet, but have more work to do before we can issue our report.

Mr. A. Chevallier has devised an arrangement capable of adaptation to all the various forms of stereoscopes now in use, for producing a dioramic effect, by means of a long slip ot silk, of from a yard to a yard-and-a-half in length, coloured in graduated shades of various hues. The application is by means of two rollers, one on either side of and behind the ground glass of the stereoscope, or the aperture where it is usually placed. The silk is wound alternately upon the two rollers, a portion being stretched between them. The ends of the rollers are constructed like a reel on which cotton is usually wound, and a string of the same length as the silk is wound upon the reel of one, while the silk is wound upon the other; therefore, in unwinding the silk from one roller, you, at the same time, wind on the string to its reel and *vice versa*, thus giving the utmost facility for passing the silk backwards and forwards, and at the same time keeping it constantly on the stretch.

At the latest moment before going to press with our last number, we had not seen the formula for Mr. Glover's preservative mixture, it having been forwarded direct to the publisher in order to arrive in time for insertion. Theoretically we cannot at all approve of it, having always found that the simpler the composition of our materials the greater the chance of our success. We do not perceive the utility of either the citric acid or the gum arabic; there is no difficulty in producing the condition of the gelatine called by Mr. Maxwell Lyte metagelatine, by simple boiling, and if that condition be arrived at where is the use of the honey, which would otherwise prevent excessive contraction of the unaltered gelatine, while the gum arabic is, in sporting phraseology, "nowhere?"

☞ The present number of the *Journal* is increased to twenty-four pages, to meet the pressure of matter and advertisements.

MANCHESTER PHOTOGRAPHIC SOCIETY.

A MEETING of the members of this Society was held at the rooms of the Manchester Literary and Philosophical Society, on Wednesday evening, May 5. The proceedings were of an interesting nature; and some photographic improvements were exhibited by Mr. Read, Mr. Ackland, and the Chairman (Mr. Joseph Sidebottom), who announced that, in accordance with the wish of the members, the meetings of the Society would be held more frequently during the summer months. A meeting will be held on the first Wednesday in June, at which one or more papers will be forthcoming.

The Rev. W. J. READ, M.A., F.R.A.S., delivered an address "*On the Optics of Photography*:"—

The title, "The Optics of Photography," he remarked, did not limit them to any particular branch of the science of optics, except so far as regarded the size of the lenses employed. All the calculations and all the results of optics depended upon very simple principles, and he should make it his endeavour to state as simply as possible what those elementary principles were, shewing their application in the lenses which they were in the habit of using, not attempting at all to enter into the abstruse or difficult calculations which could afford no interest to very many. Light proceeds generally in straight lines when it is traversing a uniform medium; but when it passes from one medium to another a change takes place in its direction, not variable, but according to a constant law as ascertained by experiment. Mr. Read here referred to his diagrams, without which we shall not be able to follow him closely, but will point out the main features of his demonstrations. He shewed clearly the deflections of rays of light on passing through different bodies, such as air, and glass o various densities. It is found also, he said, that different substances exercise different dispersive effects upon a ray of light; this gives the power of producing a colourless pencil of light, and deflecting it which way we please. A ray of light passing through a compound prism might re-appear on the other side with a change o direction, but achromatised. Mr. Read proceeded to apply these principles to lenses. A ray of light passing through a prism is, in all cases, bent towards the thicker part of the glass Mr. Read pointed out the cause of what is called "spherical aberration," and added, that it is possible, by properly choosing the curves of the lenses, to bring such a set of curves together, so that the greater deflection of the outer part is counterbalanced by a smaller deflection elsewhere. This was ascertained by intricate and difficult calculations. For the correction of spherical aberration it is not at all necessary that different kinds of glass should be used; the same glass might be employed, but the curves must be so chosen that the deflection of the ray on passing the subsequent surfaces shall be more or less in an opposite direction from that which occurred at its entering the surface. Light might fall in any direction upon a lens; when it falls in an oblique direction, there are certain curious and somewhat intricate results following. Photographic images consist not of a series of points one upon another, but of a series of circles of least confusion lapping one over another, of a breadth that may be calculated. To avoid a confused image, it is usual to place before the lens a "stop,"—that is the name given to it by workmen, and he preferred it to the scientific name "diaphragm." According to these principles all the lenses which are used are constructed. With some of them they were no doubt familiar, such as the ordinary portrait lens invented by M. Petzval, and that made by Chevalier, of Paris. Mr. Read described this lens by the aid of chalk, and remarked that Chevalier had improved this by adding another lens. The reason why the back lenses of the portrait apparatus are separated, is, that the *aberration* could not otherwise be corrected. Chevalier placed two lenses in front, and he was thus able to take large pictures, but in a longer time. As Mr. Ackland was present, he would say nothing about M. Petzval's most recent invention, the "caloscopic lens." Mr. Read proceeded, by desire of the company, to describe an invention of his own in reference to the "stop," by which some of the defects of landscape photographs are remedied. The stop in an ordinary view lens is placed parallel to the surface of the lens, and consequently the sky is brighter than any part of the foreground. Hence it was that skies are so often "overdone," or "solarised," or "burnt out." In many cases it is necessary to paint out the sky, so as to get an effect and be able to print from the picture. The sky had become transparent from the continued action of the light, before the foreground had produced its full effect. He proposed, instead of using a "stop" placed parallel to the lens, to use a stop placed at a certain, or perhaps he ought to say an uncertain, inclination to it. By using a stop of this kind they might cut off as much of the sky as they pleased, thus adding to the amount of light received upon the foreground, and preserving the relative proportions of light in the distance. In this way he thought they would be able to get what photographic landscapes long wanted, namely, something *like* clouds along with the landscape. Mr. Read produced what he called a "rude representation" of this invention, and demonstrated its action to the company. In Mr. R.'s model the lens is placed in a square tube, in which a square partition is fitted so as to move on a centre turned by a button on the exterior, the bent portions at the top and bottom are of thin springy cardboard to shut out the light; a collar of velvet surrounds the front and shuts out extraneous light. This was merely a rough model, and is of course capable of improvement. He had not been able to bring any pictures as a result from want of time. He had tried it, however, and found its effects abundantly evident, it being possible to shut out the whole of the sky, while the foreground continued as bright as before, if not somewhat brighter. After exposing the picture, the stop should be turned up for a few seconds, just the length of time necessary to take the sky alone, and then the effect of the clouds would be produced along with the landscape. He also thought of proposing a new form of copying lens, which would enable copying to be done more accurately and readily by the use of the present apparatus.

The thanks of the meeting were unanimously voted to Mr. Read for his able essay and valuable suggestions.

[Want of space prevents our giving the very interesting remaining portion of this Society's proceedings in the present number, but we intend publishing it in our next.]

LONDON PHOTOGRAPHIC SOCIETY.

An ordinary meeting of this Society was held in the rooms in New Coventry Street, on the 4th instant, **Roger Fenton**, Esq., Vice-president, in the chair.

After the usual routine business of reading the minutes, electing new members, &c., the following paper, by **T. F. Hardwich**, Esq., was read, "*On Nitrate of Silver for the Negative Bath.*"

At a meeting of this Society in January, 1857, I read a paper on impurities in commercial nitrate of silver, and recommended the more general use of the fused in preference to the ordinary crystallised nitrate. Fifteen months have elapsed since that time, and we have had an opportunity of proving how far the suggestion was a good one. The result, although confirming the views advanced in the paper, has not been altogether satisfactory, for both the fused and the crystallised nitrate are found occasionally to fail. Some samples appear good, and others bad, without any very obvious difference between them being observable: of this I have lately had experience. I prepared a bath from the commercial crystallised nitrate of silver, neutralising the trace of nitric acid, and acidifying faintly with acetic acid. We then took it into the field, with an ordinary landscape camera for plates nine inches by seven. The collodion was rather an intense sample, inclined to give red negatives, and hence I hoped to succeed without using any acetate. Everything, however, went wrong. On applying the developer, I saw at once, by the manner in which the sky came out, that I should not succeed. The silver was thrown down in the grey (a metallic) form, and there were numerous spots and brush-like prolongations from various parts, such as the spires of a church, &c., giving the appearance as if the image were out of focus. Fortunately, a friend who lived near was able to provide another bath, and with this we took good pictures, free from spottiness and imperfections.

That nitrate of silver requires repeated crystallisation, or treatment of some kind to fit it for use in the negative bath, will, I think, be allowed. Supposing the impurities to be volatile, the simple process of melting in a capsule ought to expel them. In what respect, then, does the fused nitrate of silver fail? Very often it succeeds perfectly, but sometimes it does not. When such is the case, there is a tendency to clouding of the film towards the latter end of the development; and the solution of pyrogallic acid, instead of assuming by degrees the colour of sherry wine, becomes turbid. All this may happen even when the bath has been carefully rendered acid with acetic acid.

To ascertain, if possible, the cause of these peculiarities, I examined a particular sample of nitrate of silver, which seemed to be injured by fusion, and was led, by degrees, to the conviction that it contained traces of organic matter. This I inferred from the occurrence of markings of a peculiar kind upon the film, and also from an increased tendency to solarisation and redness of the negatives: both of which effects I am able to produce at will by adding organic matter of a certain kind to the nitrate bath.

At present I decline to give a positive opinion as to the source of the organic matter; but I would call attention to the fact, that in the assay processes it is usual to employ small fragments of charcoal to prevent "bumping" as the metal dissolves, and, in consequence, the nitric acid acquires a brown colour. It is questionable whether one crystallisation is sufficient to free it from a contamination of this kind. Dealing with the commercial nitrate, however, as it is sent out, at a price barely covering that of the metal it contains, I find that I can purify it sufficiently in many cases by reducing the crystals to a fine powder, and drying them in a hot air bath, at 250° Fahrenheit. The solution of the salt so treated corresponds in properties to that of the best fused nitrate, having an alkaline reaction to reddened litmus paper. I conclude that this must be the proper reaction of pure nitrate of silver since I invariably observe it in all samples when thoroughly dried. It is essential to begin by reducing the crystals to a fine powder, otherwise the acid is retained in the interstices. A copper bath, with a mercurial thermometer in the interior, may be used; but a common plate, in the oven by the side of the kitchen fire, would, no doubt, answer the purpose. Forty degrees above the temperature of boiling water is amply sufficient.

At a higher temperature—viz., 300° to 350°—the nitrate is apt to brown a little upon the surface if kept in the hot air bath longer than twenty minutes or half an hour. All substances likely to give off empyreumatic fumes must be removed. On one occasion I injured more than a pound of the salt by using a piece of wood as a support for the dish in which it was placed to dry. It changed colour, and was spoiled, except for use in the printing processes.

Mr. THORNTHWAITE remarked that he thought Mr. Hardwich had overlooked an objection which existed to drying nitrate of silver in a kitchen oven, viz., that in all ovens of the kind particles of organic matter were sure to be found, and these would give off fumes that would be fatal to the object in view. He was anxious not to make remarks too strongly flavoured of the "*shop*," but as the subject of nitrate of silver was before the society, and his firm had manufactured the article pretty extensively, he might be permitted to say a few words on the subject. When the silver had been dissolved in the nitric acid, the object aimed at was to get crystals as large as they could, in order to rid them as much as possible of all extraneous matter, these were picked out and washed with nitric acid, and subsequently dissolved in distilled water and re-crystallised. It might give some idea of the progress of photography when he stated that his firm alone during the last year consumed upwards of *a ton and a half* of silver for manufacturing the nitrate.

Mr. W. A. DELFERIER then demonstrated his method of "*Printing Transparent Positives in the Camera*," and read as follows:—

Having experienced two obstacles in printing transparent positives on wet collodion in the camera—firstly, in equally illuminating the negative to be copied; and secondly, in obtaining a sufficient amount of light to give the necessary intensity to the positive—I determined, if possible, to overcome them, and the apparatus before you is the result of my experiments.

I must apologise for its not being more sightly; but as it is the same which I use successfully, I hope it will be acceptable. With the addition of the illuminating apparatus and a piece of board, the ordinary portrait camera is all that is required, with the exception of the illuminating apparatus, which consists of a wooden screen, with two double convex lenses inserted side by side, each lens being cut to a rectangular shape of the size of one of the pictures of the negative, the centre of each lens being placed exactly opposite the centre of each picture. The focal length of the lenses is twelve inches. A ledge and spring keeps the negative in its place, and a mat, which may be of any form, is used to limit and define the outline of the picture. A moveable standard, carrying two argand gas burners, capable of adjustment to any height, and at varying distances apart, is furnished with a flexible tube, in order to convey a supply of gas to the burners.

The camera is the ordinary sliding camera, and the lens a portrait combination of three inches diameter. A stop of one-and-a-half inches aperture can be used when necessary. This lens requires the focus to be taken on the extreme edges of the picture, to give the required sharpness all over.

The mode of proceeding is as follows:—

Place the camera at one end of a piece of board, four feet long, and the same width as the camera; and at the other end the screen carrying the squared lenses and the negative; then the gas-lamp, one foot behind the screen. Place the cap on the lens, and see that both flames are well represented in focus; then make the picture of one of the flames overlap that of the other by regulating the distance between the burners; and you will find, on removing the cap, that both squares on the ground glass are equally illuminated. Adjust the camera so that these two illuminated squares are exactly the size of the picture required, focussing as sharply as possible, and the apparatus will be in its proper position.

Having proceeded thus far, it will be well to mark the position of the camera and screen on the board, and to screw slips of wood thereon, so as to enable you at any future time to place the apparatus ready for work, without having to go over the same ground again.

I have tried to copy the negative with two small lenses, but without success, as they require so small a diaphragm to cover the plate equally in focus as to interfere materially with the intensity of the light. I therefore copy both pictures with one large lens, by which means I obtain an abundance of light, with what I conceive to be a great advantage,—which is, that the right-hand side of one picture, and the left-hand side of the other picture, are copied in the same circle of focus of the same lens.

Any collodion that will give intensity under ordinary circumstances will succeed; but if you wish for transparent shadows, develop with pyrogallic and acetic acids only.

These two transparent positives [exhibiting them] are both printed from the negative I now place in the screen,—one positive on a dry collodion plate in close contact, the other on wet collodion in this apparatus, so that a fair comparison may be made between them. The time of exposure was two minutes and a half in the camera, but a less intense negative would not require so long.

The negative can be placed with the collodion side to the light without any difference in the result, thereby allowing the positive to be mounted on a piece of ground glass (as the late French slides are) without reversing the picture.

In daylight I place the screen close to a window having a north light, for, if the sun shines directly upon the lenses, a piece of ground glass must be used between them and the window; also a piece of thin board, one end resting on the camera, the other on the screen, and a piece of black cloth thrown over so as to exclude the extraneous light.

In conclusion, I must remark that I find it impossible to focus so truly without the lenses in the screen, independently of the advantage of intensity of the light gained.

The thanks of the Society were accorded to Messrs. Hardwich and Delferier for their respective communications, and the meeting closed.

ORTH LONDON PHOTOGRAPHIC ASSOCIATION

T an ordinary meeting, held at Myddleton all, Islington, on 28th April, 1858, G. SHAD-OLT, Esq., Vice-President, in the chair. The inutes of the previous meeting having been ead and confirmed, the following gentlemen ere duly elected members—Jos. Causton and V. Moens, Esqrs.

Mr. J. A. JUDGE read the following paper *On the Wet Collodion Process*," and exhibited large number of specimens:—

I believe I may be justified in terming the collodion process the process of the day. It is the one most universally practised, and the results obtained by it surpass by far, both in beauty and in the ease with which they are obtained, any other of the photographic methods.

It is for this reason I chose it as the subject of my paper, thinking that, whatsoever the manner in which it might be treated, it would be calculated to interest all parties. Before proceeding any further, allow me to remind you that you are not to expect anything particularly novel or striking in the course of my remarks. I have been connected with photographic pursuits for some considerable time; I have read the greater part of the publications respecting the art; I have watched many good, more bad, photographers at their operations; and, bearing in mind the good old maxim—"*Bene facit qui ex aliorum erroribus sibi exemplum sumat*," I have rejected all those matters which were not, in my humble opinion, calculated to aid and assist one's progress, and have retained those only which possessed decided points of excellence. These it is my intention to offer to your notice in my paper, in the shape of an elementary one to the practice of the wet collodion process; and, if I shall only succeed in enabling you again to put in practice the aforesaid maxim, the time we shall pass together this evening will not, I trust, be deemed ill-spent. It will be needless for me to give a list of articles required—much depends upon the amount intended to be spent. The best plan is to get a photographic friend (and who does not possess one amongst the circle of his acquaintance) to accompany you to some respectable optician (avoid the "Cheap Jacks"), and then select your set. All I would suggest is, that you should not overburden yourself with knick-knacks, which would be rejected as soon as you had attained proficiency in the art.

The lenses should be burnished or fastened in their respective cells; if not so when purchased, you should get this done by some competent optician. If the lenses slip about in their cells, it will frequently occur that the centres of the corresponding lenses do not coincide, or are not in the same plane; and the pencils of light, instead of proceeding through the second, or back lens, will be distributed obliquely in various directions, according to the angle at which the lenses may be placed, giving rise to a distortion of the image. Each lens should, therefore, be ground perfectly true at the edges, centered, and fixed immoveably in its cell. I dare say it has been noticed by several here present that, after cleaning a lens, it has given much better pictures than before that operation was performed, this happy result being attributed to the polishing, whilst in many instances it is due to the altered and corrected position of the glasses. The lenses should be cleaned, when required, with a piece of fine diaper or chamois leather; silk, which is generally used, having the objection, as stated by Mr. Ross, of scratching the surface of the glass. They should be kept in winter in a warm situation, in order to avoid error in exposure, through becoming covered with condensed vapour on being taken into a room, the temperature of which is higher than that of the lenses themselves. It is well, also, if not likely to be required for some considerable period, to let them be exposed to the light; the Canada balsam employed to cement the front lenses together will not then be likely to become yellow, which it might otherwise do. Some samples of balsam are very sensitive in this respect.

The diaphragms, when used, should be placed between the lenses, and not in front of them. When placed in front, and if very small, the surface covered is much contracted; this is not the case when used otherwise. Mr. Maugey has just introduced a very ingenious method of altering the size of the internal diaphragm without removing the lenses; by merely turning a screw, the aperture is enlarged or diminished at pleasure, and to any extent—a method which will be found extremely useful for out-door operations in changeable weather.

The camera slides should be provided with silver corners, not merely wire, but pieces of silver, so placed as to prevent the prepared glass from touching the wood at any part. They should also have moveable frames, to be renewed when become soddened by use. It is never advisable to work wet plates in the slide itself.

The prepared surface of the plate, when in the dark slide, should be in the same plane as the focussing glass. To ascertain whether this is the case, cut a piece of card in the shape of a wedge, place a straight-edge across the front of the dark slide, open the shutter, and insert the wedge between the straight-edge and the glass, and mark the point of contact with the former. Proceed in the same way with the focussing glass, and if in both instances the wedge stops at the same spot, their respective positions are identical—if not, the requisite correction should be made. I mention this because it frequently occurs that, when the foci of a double achromatic portrait lens do not coincide, the correction is made by altering the position of the focussing glass; and if this fact is omitted to be mentioned to the purchaser, he may be very much annoyed if he attempt to use the camera and slide with a single lens.

The stand, if for in-door use, should be very firm and steady to prevent vibration, and should be provided with a moveable table, that can be inclined at a considerable angle. For out-door use the table is not required, and the legs may be as light as possible consistent with the strength of the material.

Having procured the apparatus, do not be in too great a hurry to commence until all is in perfect readiness and order; for although the tyro is invariably mightily pleased with his first pictures, however wretched they may appear in the eyes of a connoisseur, a series of failures, due to the incompleteness of the arrangements, is liable to discourage and annoy, besides causing sometimes a large expenditure of time and money.

DARK ROOM.

This room should, if possible, be on the north side of the house, and be lighted by a side window, in front of which the operating table or sink should be placed. The window should be covered with three thicknesses of the best yellow glazed calico, that at about 10½d. a yard. If the window is a very large one, it is advisable to entirely block out all the upper part of it with baize or other opaque fabric, and to concentrate as it were the light to that portion of it which is immediately opposite to and in a level with the eyes of the operator. With too much light it is difficult to properly examine the negative during the developing and fixing of it. If the apartment is to be permanently occupied for photographic purposes, or indeed in any case, the yellow calico should be nailed to a stretcher of wood fitting into the window frame, and attached to it by three or four nuts; it can be easily removed, and the window opened at pleasure. There should be no dust-engendering carpet or matting in the room. The boards should be bare, or covered with oil cloth. They should be frequently cleaned with a wet flannel, but never swept, at least, not whilst any of the chemicals, &c., are in the room. It is impossible to avoid at times spilling some of the saturated solution of hypo on the floor, the dry crystals of which when disturbed by the broom would fly about, and might insinuate themselves into the baths, collodion, &c., however well they might be protected.

Above all things do not let any of your relations or friends, who may be blessed with an experimental turn of mind, have the run of your room and chemicals, but keep your solutions in locked bottles, those with caps, the fastenings of which are outside the neck, and does not affect the liquid; you will soon save their extra cost, and your peace of mind will not be disturbed. In winter time the operating room should be kept as warm as possible, the chemicals will otherwise act but very sluggishly.

The developing measures should be kept whilst in use on a shelf or raised surface on one side of the developing dish, and the hpyo solution on the opposite side, either being placed on a piece of blotting paper, which will absorb all moisture, and prevent any of the dirty solutions dripping on the plate and staining the negative.

The cloths used for polishing should be of the material known as "nursery diaper," which is freer from fluffy particles than any other fabric suitable for cleaning glass plates. They should be placed in a clean drawer or box when not required for use. When dirty wash with soap or soda and water, and well rinse.

[The remaining portion of Mr. Judge's paper will be given in our next number.]

A discussion then ensued upon the subject, in which many members took part, and a vote of thanks was passed to Mr. Judge.

A letter was read from Mr. Morgan stating his inability to attend and exhibit his camera and lens on the present occasion, but promising to do so at the ensuing meeting.

The following apparatus were exhibited :—

By Mr. Shave, a design for a very portable tripodstand—

By Mr. Foxlee, a trough for washing positive prints—

Mr. Hislop, F.R.A.S., exhibited a collapsing deal camera for 10 × 8 plates, weighing, with mahogany collodion frame and focussing glass, under six and a-half pounds.

He also exhibited and explained a stereoscopic camera (of which we shall give a description in our next number), fitted with his new converging adjustment, simply consisting of a single small screw placed at the end of the traversing table. Together with this camera was shewn a dark chamber, suitable for working wet collodion in the field, or changing dry plates. When in use this is suspended beneath the camera tripod, and folds into a very small space for packing.

He next exhibited an apparatus for producing transparent stereoscopic positives, or multiplying negatives by the wet collodion process without contact.

A remarkably compact arrangement of stereoscopic camera, with eight dark frames for dry plates, with Mr. Hislop's converging adjustment, by Messrs. Horne and Thornthwaite, was also shewn. The weight of this apparatus, with extra view lens, &c., complete, being under five pounds.

Mr. D. W. Hill exhibited a developing hood, and Mr. Spicer a series of Indian views by the calotype process.

Votes of thanks were given to all the above-named gentlemen, and the meeting adjourned.

ON THE PRODUCTION OF NATURAL COLOURS BY LIGHT.

By M. E. Becquerel.

Concluded from page 60.

The method is this: take a silvered plate, well polished, and cover it at the back by varnish, so as to leave only the silver surface to conduct electricity, and to be attacked only by the chlorine; then attach this plate by means of a bent copper wire to the positive pole of one or two cells of a voltaic pile, and attach to the negative pole a wire or a strip of platinum; then plunge the silver plate and the platinum into a mixture of eight parts of water and one of hydrochloric acid, both by measure. The chemical action of the electric current gives hydrogen upon the platinum, and chlorine upon the silver at the positive pole. The silver is attacked, and becomes greyish violet in colour; its tint deepens, and after some minutes of action the plate becomes as black as though covered with lamp-black. When the plate is prepared, it suffices to polish it slightly with cotton or leather, to remove a sort of veil which covers the surface; and then immediately use it to produce colour by the action of light. This mode of preparation yields the best chloride for obtaining the picture of the spectrum with all its tints; under certain conditions it may also be used in the camera-obscura.

It is very remarkable that the sensitive rface here spoken of is impressionable tween the same limits of refrangibility as the tina, and it is the only one having this operty. If we project the solar spectrum on a plate prepared as directed, we begin to e an action manifest itself in the yellow and een; then there follows action on the one le towards the red, and on the other to the olet; *the action is most energetic where we find maximum of light.* In the red part the rface takes a red tint; in the yellow a llow; in the green a tint of green; the blues e very fine, and the violet resembles that of e spectrum.

If we isolate a bundle of red rays and cause to act, we observe, when the action begins at the surface turns red; and on continuing e action the tint remains; however, by pro-nged action the surface is completely changed, d nothing but metallic silver remains where e light has fallen.

If we operate with a bundle of blue rays a milar effect is produced; the blue tint obtained epens by degrees, and at last, at a certain nit, the appearance of metallic silver alone mains. It is the same for every group of ys which is capable of reproducing itself, and last all seem to give metallic silver.

These effects shew, then, that it is not by an tion analagous to the well-known case of the olours of thin plates, that the surface repro-uces the colours of the light, but by virtue of special action which causes this curious sub-tance of which we are speaking, to have the culty of diffusing only rays of the same efrangibility as those which have acted chemi-ally upon it.

I will now speak of the probable composition f this sensitive substance: although I cannot ive with certainty its composition, I am led to elieve that it is *violet sub-chloride of silver*, that s to say a chloride of silver having one quivalent of chlorine less than the white hloride. I may, in support of this hypothesis, dduce the fact, that in treating this chloride y the usual solvents for the white chloride, uch as ammonia, hyposulphite of soda, &c., hey dissolve out white chloride, always leaving ehind metallic silver.

The sub-chloride of silver is the only body hemically sensitive which enjoys as yet the emarkable property of reproducing the tints of he luminous rays. The iodides, bromides, &c., ive no colour, and even if the chloride is mixed vith one of these compounds, all colouration eases. Further than this we may remark that he colours are obtained by the direct action of ight without the employment of a developer.

I may add that I have obtained this curious ubstance upon the surface of paper, glass, orcelain, collodion, gelatine, &c.,; but the ffects have always been more difficult to obtain nd less beautiful than upon the metallic plates.

The influence of the thickness of the sensi-ive coating upon the effects obtained is enormous; when the coat is thin enough the sensitiveness is greatest, though it is less sensitive han the ordinary bromo-iodised silver plate. It is almost as sensitive as Daguerre's simply iodised plate, but the effects of colouration are weak as the sensibility increases. In using a thicker coating the substance is less sensitive, but the colours produced are more defined, and as the coating increases in thickness the sensibility diminishes, but the colours are certainly finer.

There is a method of knowing with certainty the relative thickness of the coating, and of preparing it always in the same manner. It consists in introducing into the voltaic circuit formed by the pile and the plate in the hydrochloric acid bath, an ordinary apparatus for the decomposition of water, placed in such a manner that the electric current which liberates chlorine upon the silver surface shall decompose water in the second vessel. Now since electro-chemical decompositions take place in definite proportions there will be the same quantity of chlorine carried to the plate that we have of hydrogen liberated in the water apparatus: thus supposing that the *voltameter* indicates 5, 6, or 7 cubic centimetres of hydrogen, we shall be certain that there as many cubic centimetres of chlorine fixed upon the surface of the silver plate.

By operating in this manner we can learn at any moment during the operation what is the exact quantity of chlorine we have put upon the surface of the plate.

I have learned that we must have, in order to arrive at a coating the thickness of which *corresponds to the third order of thin plates*, three cubic centimetres of chlorine for each square decimetre* of silver surface. Under these conditions we get very good reproductions of the coloured prismatic image. But if we go on to six or seven cubic centimetres to the square decimetre, that is to the thickness which corresponds to the thin plates of the fourth order, we get our best coloured results. It is there that we must stop to get good effects. To give some idea of the real thickness of this coating, I may say that with four cubic centimetres of chlorine to the square decimetre, the coating has about the $\frac{1}{1000}$ of a millimetre in thickness.

When a luminous spectrum is directed upon a surface of silver prepared with from six to seven cubic centimetres of chlorine to the square decimetre, the surface of which has a shade of colour resembling wood, the proofs which I now submit to the Society will shew the effects obtained: the parts affected by the red of the spectrum is red and turns to a very deep red towards the least refrangible extremity, the yellow is scarcely visible; the green is very perceptible, the blue and the violet are superb, and present exactly the tints of the spectrum.

On the whole, the shades, though like those of the active luminous spectrum, are somewhat more dull, in consequence of the under colour of the plate, which remains somewhat distinct. But as we shall see hereafter that we can modify the surface after its exit from the bath, and before its impression with the spectrum, in such a manner that the colours obtained will be much more beautiful.

In fact, this material, which might be called "mineral retina," is capable of undergoing very remarkable modifications, whether by the action of heat or by that of certain portions of light. In elevating the temperature of the chloride, but not sufficiently high to fuse it (from 150 to 200 degrees), the tint acquired after cooling is seen to be of a rosy hue. If the spectrum be made to act upon the substance thus modified, the effects are altogether different from what they were previously; the limits of action are very nearly the same, that is to say, are those of the visible spectrum, only the yellow and green, though pale, impress themselves clearly upon the bottom, which remains of a darker colour; and if wo carry on tho action of the spectrum too far, we have for a final result a trace of white instead of the grey that we obtained before heating.

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* The decimetre is about four inches. The metre being about forty inches, the centimetre is, of course, about the 1-100th part of the metre.

If we thus heat the plate beyond 150 degrees, the physical transformation of the material which takes place causes the greater part of the shades to disappear; but if we limit the heating to a slight elevation very much prolonged it is not the same: to effect this we place the plate in the interior of a copper box, which we introduce into a stove heated to from thirty to thirty-five degrees, or thereabouts, and keep up the temperature during four, five, or six days; then the coloured prismatic impressions are very beautiful, as you may perceive. Not only the various shades of red, yellow, green, blue, and violet situated in the places acted upon by the spectral rays of the same colour clearly come out from the foundation, which remains of a more sombre hue, but further, a bundle of white rays produce a white tint in the place upon which it acts.

The sub-chloride of silver suffers equally from the action of the extreme red rays of the solar spectrum, a physical modification as remarkable as by the action of heat, and permits of its having, by another means, beautifully coloured reproductions of the solar spectrum. To obtain this result we place in a frame covered entirely with a deep red glass (coloured by protoxide of copper), a plate so prepared that it comes out of the bath after being submitted to electrical action, and we expose the whole to the solar rays; at the end of from fifteen to thirty minutes the plate becomes darker than before, and the same effect is produced that is manifested at the least refrangible extremity of the spectrum. At the same time that this colouration takes place the sensitive material gradually becomes modified, probably in the same manner as under the action of heat. In projecting the solar spectrum upon this surface it appears at the close of several minutes with all its shades admirably reproduced, even with the yellow and green parts very distinct, which before this operation would have been dark and scarcely indicated.

It is not necessary that the previous action of the red rays should be too prolonged, as the material would thus be rendered less sensitive.

A judgment of the different actions may be arrived at from the proofs now laid before the Society.

Coloured impressions once obtained can only be preserved in darkness, but then they can be preserved indefinitely; if they are exposed to the diffused light of the sun they gradually alter, and finaliy disappear. It is very remarkable that it should only be, as one may say, in a transition state that the sensitive matter should possess the quality of reproducing the shades of the active luminous rays; thus, in parting from a particular physical condition, that portion of the substance not actually altered, but verging towards the extreme limits of complete decomposition, manifests different physical conditions according as it is affected by this or that ray.

It results then from what I have just said, that the coloured impressions which I present to you are continually changing, even while we look at them; if we preserve them in darkness they cease to alter. Only as the material is not very sensitive, above all if it is only acted upon by lamp-light, we may leave the proofs for several days under its influence without their disappearing. The effect produced by diffused light is such, that if we place a coloured proof under a blue glass, for example, it will assume a blue tint, and will then become grey. It will be the same with glass of every other colour; the final condition with regard to colour, seems to be the same whatever may be the light which strikes the substance. It appears, then, that it is only when in an intermediate state, as I have already stated, that it presents colour.

It is possible to obtain coloured images in the camera, that is to say, paintings by light, as may be seen from the specimens that I present, and some of which go back for nearly ten years.

But there are reasons against these paintings being so distinct or having shades as brilliant as the luminous spectra; in fact, in the camera the images have colours more or less mingled with *white*, it is then requisite that the action of the white light should not change the shade of the predominating tints of the coloured rays. Then, in order to obtain this result, it is necessary previously to submit the prepared plates to a reheating or to the action of red glass, and then the lights are clearly obtained, but the yellow and green tints are not clear. If we do not reheat the plates the tints will come but the lights are grey. On the other hand, the material is but slightly sensitive, and several hours, even several days, may be required to produce these images; nevertheless with precautions we can avoid a portion of these defects.

The proofs of the reproductions of coloured images which are here will shew what it is possible actually to obtain by aid of this sensitive material.

These last reproductions have occupied me but little as yet, for they only possess for me an interest purely scientific, and I have not thought that they can be usefully applied since the impressions exist only in darkness, and gradually change in the light. All the attempts hitherto made to obviato this alteration have been unsuccessful, and it is only in a transition state that the sensitive material, the veritable mineral retina, possesses the remarkable property of preserving the impressions of the active luminous rays. I ought even to add that the attempts made by some persons who have tried my process, and from whom I have had the information, are far from being as clear as these which I have presented to you, and which have been obtained by taking all the precautions above indicated.

Shall we find the means of preserving these images? Will the arts be able to enrich themselves by pictures painted by light? It is what one does not know how to affirm. I am bound to render you an account of the experiments in all their details, in order to make you acquainted with a material image in its way which permits of *painting with light*, and to enable you to reproduce readily the effects that I have obtained.

ON THE PRODUCTION OF DIRECT POSITIVES—ON PRINTING BY THE SALTS OF THE URANIC AND FERRIC OXIDES, WITH OBSERVATIONS CLIMETIC AND CHEMICAL.

By C. J. Burnett.

(Continued from page 112.)

With collodion, albumen, and other films, it would appear that we have the same choice of employing soluble or precipitated salts. With collodion we might either dissolve in it the uranic or ferric salts and precipitate by a vegetable acid, or reverse the order; and if we wish a soluble salt, the nitrate, hydrochlorate, and formiate of uranic oxide are soluble in alcohol and æther, and afford highly sensitive collodions, beautifully developable by silver with or without aid of accelerators or stimulants (or by gold or other developers as ferro-cyanides) and in the case of iron (and possibly manganese), the sesqui-chloride and *pernitrate* seem not unlikely to give a sensitive collodion. With albumen, and for collodion and gelatine films for positives or negatives, we may also, if preferred, prepare the film without any sensitive mixture, and charge by subsequent immersion or immersions, and (solubility in æther or alcohol being not here necessary) a greater variety of salts will answer.

One great difference between the results given by the uranic and the ferric salts, with silver developments, appears to be the harsh black and yellow tinted lights, which (though I do not mean to say that this might[*] not be probably overcome,) we frequently get with the latter; while with the uranic salts we get purity of whites and a variety of reds, browns, greys, blacks, and other tints and shades, varying according to the solvent acids (a relation being here traceable to the colours obtained by the simple argentine papers prepared with the same acids), strength of solutions, acidity or alkalinity of the baths, length of insolation, mode of fixing, &c. Using generally *nitrate of silver*, or ammonio-nitrate or ammonio-oxide solution (though we may use many others), I have got good greys, browns, and grey-blacks, on the uranic nitrate paper, mouse greys, &c. on the phosphate, rich purple browns, &c. from the tartarate, and good colours from mixtures of the phosphate with citrate, tartrate, or acetate. The hydrochlorate, hydrobromate, hydrofluate, hydrofluosilicate, and some others, are apt to give unpleasant raw reds, toneable, however, as are all the others, to any extent, by solution of chloride of gold, platinum, or palladium. In spite of obtainableness of good colour, as indicated by adding a few drops of a ferric salt, as *pernitrate*, to the uranic nitrate solution, and in spite of so far proved durability, at least when kept from fingering, to which I have sometimes found them remarkably sensitive, I am inclined to recommend this toning with chlorides of gold or *platinum*, which costs only about 15s. per ounce, and which I have found answer equally well. These, or ferric, or ordinary prints, thoroughly platinum-toned, promise extremely well for burning into glass or porcelain. As to sensitiveness, I find the tartrate more sensitive than the nitrate; and the benzoic, succinic, formic, and oxalic papers, seem to be also very highly sensitive. Some of these solutions are a little troublesome to make directly from the commercial oxide, as boiling will sometimes produce deoxidation as well as occasionally alteration of acid.[*] The ammonia in the oxide enables us however to obtain a stronger[†] neutral solution than we otherwise could.

The phosphoric solution gives a considerably less sensitive film possibly apart from its binacidity. But in most of these cases, from the exact strength of the solution of oxide not being ascertained, I do not like to speak too decidedly as to my proportionate sensitiveness till after further experiment. The nitrate, or salt of other acid, whose salt with silver is also soluble, has particularly in positive-printing apparently some advantage in facility of fixing. If we could fix with distilled water alone this might deserve consideration; but if we use ammonia, or acid, or acid salt, or an ammonia salt of the same acid in the water, or combination of any of these, as I recommend on account also of salts already in the paper, and of the tendency of silver to form organic combinations—this advantage disappears, and there are even cases, *i. e.* where we intend calling in the aid, in development, of the salts of ferrous (or other lower) oxide, or of gallic acid or its allies, where the insolubility of the resulting silver salt, as in the case of the citrate, may be a great advantage. In the development of collodion or albumen positives or negatives on glass (enamelled glass or porcelain also), we may either pour on the acidulated stimulant (gallic, pyro-gallic, ferrous, or other), along with or after the silver salt, or we may first steep the glass for a sufficient time in the silver bath, and then place it in the stimulant bath. In paper (albumenised, plain, or collodionised or albumeno-collodionised), whether for positives or negatives, the proper plan of development on this system is clearly first to float the paper on (or immerse it in) the silver bath till enough silver is taken up, and then immerse in or float on the bath containing the acidulated gallic, tannic, pyrogallic, and ferrous or allied stimulant. Even for positive-printing on paper this plan will be found, I believe, occasionally to have great advantages, and for negative-taking with the uranic or ferric papers, the use of one of these acidulated stimulants, either mixed with the silver solution, or in the separate bath, will evidently enable us to produce our pictures on collodion paper or other material by a much shorter exposure then would be otherwise possible, and still more as to the application of these stimulants to the paper or films before insolation, we must put a very small quantity of gallic acid or protosalt of iron into the collodion (we may add a little vegetable acid to it in this case), or protosalt to the albumen, or we may dip either of them in the acidulated soluble stimulant immediately before placing it in the camera (or there is even nothing to prevent our using them both before and after exposure). And on paper, either plain, albumenised, or collodio-albumenised, their application in these ways by mixture or floatation is equally simple. I have been trying to persuade our photographers here to try a few drops of alcoholic solution of gallic acid, or one of its allies, in ordinary collodion for instantaneous pictures. However I am rather inclined, with uranium, to give the preference to the reserving of the stimulant action till after exposure in the camera, particularly in the case of paper. We thus save ourselves all trouble and risk of paper going wrong on our hands, and in warm climates especially, this is a matter of great importance. With uranic collodion some of my experiments seemed to indicate that the exact amount of exposure is not a point of such nicety as with argentine collodion; this might probably enable us to avoid the necessity of developing at the time. Uranic and ferric papers certainly keep admirably, and we may print upon both the uranic collodion and albumen dry, by juxta-position in the pressure frame. I have experimented sufficiently to find out that we may produce not only negatives and good transparencies on glass, with collodion, albumen, and gelatine, but also very beautiful positives on enamelled glass and porcelain, both by the silver and gold, and also by the ferridcyanide or palladium development of uranic salts. The albumen film imbibes very readily the uranic salts (and also the ferric); and, with gelatine, we may mix the two substances. In sensitising and developing in such processes, the upright bath with dipper, is, on the whole, decidedly the most convenient, and one of gutta percha seems, *in most* cases, to answer well, but, for some solutions, porcelain is probably preferable.[*] Albumen and collodion, on paper, give good positives.[†] We might, probably, have a dry collodion process with silver, uranic, or ferric salts, on paper or waxed paper, with or without albumen above or below, such a process would have great advantages in point of portability, and there would not, probably, be any impractability in afterwards transferring the film to glass if wished (say, by, in the first instance, cementing it to the glass with varnish, and then wetting the albumenised paper till it could be peeled off). The attraction for moisture of the uranic salts seems to help to keep the collodion open to penetration, even *without* the assistance of grape sugar. I have long been trying to persuade our practised photographers to give the uranic salts a fair trial with silver developments, both for printing, and still more especially for negative taking on collodion and paper in the ways indicated. Though my experiments have been made principally in the pressure frame, (and though I have been much interrupted by bad health, &c., during the last year,) yet still, they have been quite varied and numerous enough to entitle me to speak with some confidence. As to the comparative advantages of uranic and ferric salts for silver development positive printing, I have stated that the results I have got from the uranic have been more generally pleasing and varied, but could this be got over (and apparently it may), the superior cheapness of the ferric salts would be an immense advantage. The getting rid, at once, of the hypo-sulphite of soda, (which, *whether it can be or not, is not likely, on a large scale, ever to be thoroughly washed out*, does much to remove the objection to the application of photography for purposes of book-illustration. Not that I mean to say, for my experiments have not yet *demonstrated* it, that there is any absolute necessity for having recourse to uranic (or ferric) salts, to enable us to fix without hyposulphite, and tone with chloride of gold or platinum.[*] Still, in the mean time, photographers might do *much worse* than pay a little attention to the silver and gold developments of the uranic, and also the ferric salts, both on paper, plain or prepared as indicated, and glass. The ferridcyanic developments also, though of minor importance in one way, are, particularly with iron toning baths, well worthy of attention both for films on glass and on paper. I have developed the sesqui-salt papers also with salts of palladium. I have elsewhere suggested the use of uranic and other salts, along with gelatine or albumen, &c., for photographic and photometallographic processes, instead of bichromate of potash, as well as a combination with resins, as an experiment well worthy of thorough practical trial.

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[*] *E.g.*, prepare the paper plain, geletanised, collodionised, or geletino-collodionised by floating it on a solution of the ammonio-ferric-oxalate. Dry and keep in the dark. Expose under negative say two to six minutes. Develop by solution of nitrate of silver (we may develop also with gold or palladium). Transfer to an acid bath or bath of binoxalate of ammonia (or oxalate), and fix with that and plain water, or rather with the addition of a little ammonia to one or two of the later waters to make more sure of extracting the silver-chloride. Tone, and *protect* with a *platinum*, gold, or palladium bath. The ammonio-citrates or ammonio-tartrates may be worked in the same way. I have also got an excellent print by sensitising albumenised paper with the medical pernitrate, developing with ammonio-nitrate of silver, toning with platinum or gold, and dissolving out ferric oxide by hydrochloric or other acid.

[*] The saccharic acid seems easily changed, and the meconic acid I have found destroyed even without application of heat. Both meconic and saccharic acids seem deserving of attention in photography.

[†] Some of the ammonia acid salts crystallising well, and not being deliquescent, might be convenient for general use, also the acetate.

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[*] Mr. Barnett has showed, publicly, specimens of both these developments on enamelled glass.

[†] For collodionising paper for positives, when we do not wish the albumen-like shine on the surface, I prefer a weak collodion *containing a large proportion of alcohol* to prevent too rapid evaporation. This is a process which would be better conducted by a professional manufacturer than by the photographer. Such papers give good definition without unpleasant gloss or glare.

[*] See my paper of February last year in *Photographic Notes* I have tried some not unpromising experiments for the fixing of the oxides or other aqueously insoluble dark or coloured compounds (or mixtures) of manganese, copper, iron, cobalt, nickel, &c., &c., both on paper, and on glass and porcelain, for burning-in, (and textile fabrics), with the aid of gelatine or albumen, on this same principle. In the case of paper we may adopt either of two plans, the first being to precipitate the oxide or other compound or mixture in the pores of the paper by double decomposition, then saturate the whole with gelatine or albumen, mixed with the sensitive chemical, then solarise, wash out gelatine where unacted on, and dissolve out the oxide or other compound, where left unprotected, with acid or other suitable solvent; and the second plan being the application of these substances ground up with or covered by the gelatine, externally, and after-removal on the same principle. The giving the paper a previous coating with albumen or similar substance, before application of the oxide or other compound, would much facilitate the removal of it, and might even make that possible without aid of acid. There has been some talk of applying carbon in a similar way lately, but without the protection of the paper in some such way, the use of such a peculiarly adhesive powder seems to be out of the question. For porcelain and glass it is, of course, the second plan we adopt, and with or without acid or other solvents. All sorts of colours might be mixed in this way, and a good deal done in the way of shading both on paper and on porcelain, by a little dexterous management, the oxymel application of the coloured oxides or other substances with the gelatine.

(To be continued.)

CORRESPONDENCE.

☞ *All* EDITORIAL *Communications*, BOOKS FOR REVIEW, *&c., should be forwarded to the Editor*, GEORGE SHADBOLT, ESQ., 2, *Upper Hornsey Rise, N., Middlesex. All* ADVERTISEMENTS *and* LETTERS *on the* BUSINESS *of this* Journal *should be addressed to the* PUBLISHER, 32, *Castle Street, Liverpool.*

POSITIVE PRINTING BY DEVELOPMENT.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—As a reader of your *Journal* from its commencement, allow me to trouble you on some points of positive printing. I am satisfied your knowledge and experience will be of advantage to all amateurs of the photographic art. I confess to being an admirer of positives printed on albumenised paper, also of obtaining pure white and black tones. These objects are not always easily obtained, especially by those who use an old solution of hyposulphite of soda and gold, which is readily given to tone purples, which afterwards rapidly fade.

To obtain pure white and black on albumenised paper, I lately unsuccessfully tried a new or different mode of printing which at first promised well, but alas! soon, like many sun experiments, disappeared under clouds.

But to the question. I took a sheet of the albumenised paper and floated it for two minutes on a solution of the bichloride of mercury, strength one part to four parts water, dried the paper, then floated for three or four minutes on nitrate of silver, solution 50 grains to the ounce dried, and next morning the paper which had remained still uncoloured was exposed under a negative for one minute. The picture which had faintly appeared was washed well in water, then develeped by a solution of protosulphate of iron, fifteen grains to one ounce water, adding one grain citric acid.

The picture developed rapidly and intensely, giving clean whites and dense jet blacks, and when washed appeared to give me what I wished, but, lo and behold my despair, on endeavouring to fix my picture in a new solution of hyposulphate of soda first, and at another period cyanide of potassium two grains to the ounce of water, to find my fine picture become ugly and defaced, whites become yellow, the blacks no colour, in fact, the appearance of my positive was so altered that I removed it out of sight by putting it in the fire.

Now I hope great things from your superior knowledge, and will feel as one of many could you aid me how to fix my positive and yet keep the beautiful whites and blacks I can get by the process I have recorded. I hope you will pardon my long letter, and believe me, yours sincerely,

Glasgow, 21*st April*, 1858. GLASGUENSIS.

[We know of no means by which you can dissolve out the undecomposed chloride of silver without altering the colour of that which has been reduced, unless it has been protected by a coating of gold either from the use of the chloride of that metal or from sel d'or. The rationale of the process seems to be as follows:—bichloride of mercury Hg. Cl. 2 in connection with nitrate of silver Ag O. N. 05 in excess produces chloride of silver, plus nitrate of silver, plus nitrate of mercury, plus free nitric acid, the latter doubtless preserving the whites under the action of the developer, while the nitrate of mercury would prebably be inert or nearly so, consequently we do not see how the material forming the picture differs from those ordinarily produced. We tried some experiments, and the best effects we were able to produce in this direction were accomplished thus: The paper being prepared and rendered sensitive as you describe, was exposed under a negative until all the details were faintly visible, then washed well in water, and floated on some of Mr. Hardwich's acetate of iron solution (see page 74) diluted with ten times its bulk of water. The development was complete in about two or three minutes; it was then washed in salt and water, and subsequently plain water; then fixed by immersion in diluted ammonia, washed and dried. The dark parts were then of a metallic bronze colour and very intense. It was afterwards floated upon the solution of bichloride of mercury until the picture had *disappeared*, was well washed, and then immersed in very weak ammonia and water, when the impression again made its appearance, and when dry assumed a brownish black tint, and the glossiness of the albumen having been entirely removed.—ED.]

PROPORTIONS OF LIQUIDS AND SOLIDS.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—In common with many others, I also am desirous of drawing a little from your well-stored literary stock. May I, therefore, request the solution of the following difficulty?—Occasionally, nay I think I may say frequently, an ambiguous kind of description of quantities of chemicals is made use of in the *Liverpool & Manchester Photographic Journal* difficult, at least to the tyro, to understand, in consequence of the articles consisting both of solids and liquids. An example of the case in point will be found at page 101 of your last number, about two-thirds from the top of the first column, where the latter part of the sentence runs thus: "pouring off the liquid into a glass vessel, we have added five or six drops of acetate of lead, dissolved in distilled water, in the proportion of *six per cent.*" The doubt exists in the scored words. Am I right in reading the sentence thus: Six grains of sugar of lead dissolved in a hundred *grains by weight* of distilled water? If so, it would, as a general rule, have been much more intelligible to the general manipulator to have given the quantity of salt in grains, and that of the water in minims, *fluid* drachms or ounces, as each formula might require. Or should I be correct in always considering the grain of solids to be equal to the minim of liquids?—Yours most truly,

April 19*th*, 1858. ESCULAPIUS.

[The concluding portion of your letter is so complimentary that we had not the courage or vanity to publish it, but we thank you heartily for your good opinion and kind wishes. It is generally the practice amongst our photographic brethren in France to quote the strength of a solution at so much per cent., but in translating we *generally* give the approximate quantity, according to the English method; but when preparing the last number we were suffering severely from an affection of the head, having literally risen from a bed of sickness in order to do it, and we therefore overlooked the point. Your surmise is correct, one minim being regarded as equivalent to a grain,—consequently six per cent. would be about 28¾ grains to the ounce. A simple rule to follow is to multiply tho per centage by *five*, and that will give nearly the number of grains to the ounce; and if all the solutions employed be treated alike in this respect the relative *proportions* are still adhered to, and the absolute strength very slightly varied, so little as to be immaterial in practice.]

RESTORING SLOW COLLODION, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—(1) I have some old positive collodion by me (Hardwich's); it works well in all other respects, but it is slow. You would do me a favour if you would inform at your earliest convenience, if, by the addition of any solution, I could accelerate (it will bear thinning) a quantity about 10 ozs., (2) and also if you could refer me to a good formula for my negative collodion, and a developer to work with it. I require a collodion that will keep. Yours truly,

Pembroke-st., London, W. CLARKE.
April 12th, 1858.

[1. Place a slip of *silver foil* in your slow collodion for a few days, or a piece of clean *zinc*. When discoloured you may thin it by the addition of a little pure ether, the thickening having most likely occurred from the evaporation of this ingredient.—2. A good negative collodion that will keep well may be made as follows:—Pure ether five drachms, strong alcohol two drachms, pyroxyline (gun cotton or paper) made at a high temperature five grains, chloroform ten minims, iodise with alcohol one drachm, iodide of cadmium five grains. Developer—pyrogallic acid two grains, water five drachms, Beaufoy's acetic acid three drachms, or use the acetate of iron, as recommended in page 74.—Ed.]

WHITE POSITIVES ON GLASS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In your *Journal* for 1st March I observed a letter from Mr. W. Anderson, of Bradford, wishing for information on the whitening process. I have seen a specimen of the pictures he mentions, the whites of which were pretty good. On seeing this I made several experiments to gain the effect by re-development. The one in which I have been most successful is this: take a picture in the usual way, and after fixing, lay it in a dish containing hot water, and let it remain there about three minutes, then take it out, and wash with cold water, drain it a short time, and place it on a levelling stand; now pour on the re-developing solution, composed of

1 ounce distilled water,
12 minims saturated solution of bichloride of mercury in muriated acid,
20 grains protosulphate of iron,
12 ,, nitrate of potash,
½ drachm alcohol.

On the first application of the solution the picture will almost disappear, and then gradually become more and more developed. Let it remain in this position until you have gained the desired effect, which will take from twenty to thirty minutes; then wash thoroughly with water, and dry by the fire. But then the picture wants varnishing, and I have tried many kinds of varnish, but have not yet succeeded in finding the right one, for the general kinds, especially the French, turns the picture into slate colour. The best method I have adopted is, after the last washing, and whilst the plate is still wet, pour on a solution of isinglass, ten grains, warm water one ounce, filtered, on which, when dry, you may colour, and with care produce some very beautiful results.

Hoping this will be of service to some of our photographic brethren, who will, I trust, make a further advance in this branch of the art and report their success.—I am, Sir, yours respectfully,

J. B. R.

P.S.—I shall be glad to hear of a suitable varnish.

Macclesfield, April 9th, 1858.

[Try gum arabic thirty grains, water one ounce, glycerine ten minims.—Ed.]

SYRUP, IODISING SOLUTION, AND COLLODION.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Will you kindly give me a reply to the following queries in a future number of the *Liverpool and Manchester Photographic Journal.*

1st.—How long will honey syrup (honey and distilled water equal parts) keep in a good working state? (Temperature below 70°) 2nd.—To which iodide do you give the preference for iodising collodion employed in the honey process? 3rd.—Having a large stock of old un-iodised positive collodion, how would you advise me to proceed to render it available for negatives. I am, sir, yours faithfully,

Eccles, April 28th. GEORGE HAYDON.

[1st.—Almost indefinitely; in hot weather it will probably ferment slightly and become charged with carbonic acid gas, but if this occurs, pour it backwards and forwards from one tumbler to another several times, to dissipate the gas, and it will work as well as at first. If it becomes turbid filter it until clear. 2nd.—If pure, iodide of potassium, but iodide of cadmium will do. 3rd.—Add from one-half grain to two grains of pyroxyline to each ounce of collodion, then iodise with five grains of iodide of potassium, dissolved in one drachm of alcohol to seven drams of the collodion.—Ed.]

STEREOSCOPIC CAMERA, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Will you give me your advice under these circumstances:—I am about to give orders for a stereoscopic camera, having, as you recommended in page 65, No. 5, a number of separate dark slides. My principal wish is to take *views*, and from the negatives to print *transparencies*. This involves me in some difficulties, which are these,—

1. If I obtain a camera with *two* lenses, can transparencies be printed without first reversing the two pictures? Suppose the plate exposed in the camera with the collodion slide *from* the lens instead of *towards* it, would that do away with the necessity of transposing the pictures obtained?

2. Although my main object is to take views, and therefore as I am told that *single lenses* are much superior for this purpose, I feel almost inclined to get them, besides they are somewhat lighter, and portability is a matter of consequence, however, as I might occasionally like to take the stereoscopic portrait of a friend, I wish to ask whether, if the portrait lenses were so stopped down as to take pictures in the same time as the single lenses, (I suppose with an equal stop they would take much more quickly,) the single lens has *any* advantage. If there be the *slightest* advantage on the part of the single lenses I should prefer them, as my object is principally to take views.

3. What is the proper distance between the two lenses? Is the question yet fairly settled by scientific disputants whether they should always be the same distance apart, no matter how far off, or how near the objects to be taken, are from the camera; and should the lenses be mounted with their axes parallel or converging.

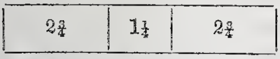
I am now exposing a stereoscopic plate prepared by Long's process, giving a quarter of an hour to each picture, making half an hour for every negative I take or spoil. This seems a great deal, but I know from previous results it will not be at all overdone. It seems very necessary then, that if a twin lens camera will give as good result as when the two pictures are taken singly, it should be used with a dry process.

I hope you will be able to get me a reply inserted in next number. I intend starting on a tour very shortly, and want to give orders for the camera as soon as possible.

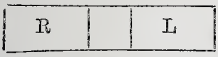
You hint that you will soon have a paper on stereoscopic cameras,—I hope it is ready. Stereoscopic photography seems to be the great rage, though but little space is given to it in any of the journals, and yet how many open questions connected with it there are for discussion.—I remain, truly yours,

NEOPHYTE.

[In replying to enquiries we prefer to give our *reasons* with the advice, but we fear that in the present instance we cannot afford the necessary space, we will, however, endeavour to meet your views. You say *you have* a number of dark slides—but you omit to state the size of the plates that they carry; are they 5½ by 3⅛, or 6¾ by 3¼? Upon this will depend the possible distance of the lenses from one another, if two be employed. 1st. You can print transparencies from negatives taken by two lenses without reversing the pictures, provided that you print *two at a time*, and that the negatives are on the same sized glasses as you use to print upon. In this case if the plates be 6¾ inches long, and the width of each for stereograph 2¾ inches, as is usually the case, the centres of the lenses should be four inches apart, thus—

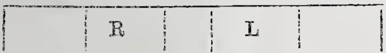


Taking the negative with the collodion side from the lens would give a final result of a picture as seen reversed in a mirror. With two lenses, whose centres are four inches apart, and the collodion towards the lenses, the negative taken would give a printed positive, thus—

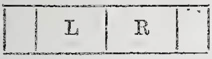


To print transparencies, place two dry sensitive plates end to end, thus—

and cover with the negative, thus—



protecting the two *outer* halves of the plate with black velvet; expose to the light, then reverse the position of the two plates on which you are printing replacing the negative and velvet as before, again expose and the result will be, with the collodion towards you, thus—



on each plate, which is what you require. We recommend you to have a camera with two single lenses, placed four inches apart, and by having a shifting front you can at any time replace them, either by one portrait combination to slide over both segments or two combinations, as desired. The double lens does not preclude the possibility of taking the two pictures at any distance, by moving the camera, but, of course, when this is resorted to, the two pictures cannot be taken at the same moment. Read the remarks in our last leader. Portrait lenses, stopped down to the *same aperture* as single ones, *if of the same focal distance,* do not work any quicker. Your exposure is enormous—in a good light from one to three minutes ought to suffice; what you call *Long's* process is only Dr. Norris's spoiled.—Ed.]

COLLODION NOT ADAPTED FOR BOTH POSITIVES AND NEGATIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I am somewhat surprised at so much of your last and a former number being devoted to what I consider as little else than puffs of Mr. Maddison's positive collodion. I consider it a very bad precedent to insert letters professing to give general information, yet insinuating an eulogy on a particular collodion, especially when it proceeds from the maker thereof. As you have allowed a note to appear confirmatory of the supposed excellence of this particular article, allow a word to be said on the other side. I too have used this special collodion, pints of it, made it myself from Mr. M.'s formula, used it for months until I discovered better, and although admitting that it is good, decidedly give it as my unbiassed opinion that it is *not* the best in the market for positives, and not at all suited for the general purposes of negatives, giving too weak a picture with an iron developer, and impracticably slow with pyrogallic acid. As to the curious *melange* of honey, acetate of lead, nitrate of silver, and gallic acid, a collodion that requires such a mixture as this to develop it, may be at once put out of court for all practical purposes. In fact, so far from its being equally adapted for positives and negatives, I consider that it is not well adapted for *either*, as a reference to its composition will, I think, satisfy all who have had any experience in making collodions. The formula is, "pyrexyline made from paper, to dissolve thoroughly, and dry transparent: *quantum suff.* Ether five parts, alcohol three parts, iodide of ammonium four grains per oz., a few drops of saturated *aqueous* solution of chloride of sodium (which fall to the bottom, and remain almost entirely if not quite undissolved, and which can therefore do little good or harm), and thirty minims pyro-acetic spirit per oz." This last addition prevents the collodion changing colour and liberating iodine, *but it does not prevent its gradually losing its sensitiveness.* It is this addition of pyro-acetic spirit that spoils it for negatives, and the absence of bromides for positives.

I have experimented largely, and without the slightest bias in favour of any particular maker, honestly declare that this collodion is not so well adapted to give softness, gradation of half tone, combined with rapidity of impression, as the positive collodions of several makers in London, Birmingham, Sheffield, Norwich, and elsewhere.

The above remarks have been made certainly out of no opposition to Mr. Maddison, but from a desire that both sides should be heard, and to shew that the merits of even a good collodion may easily be overrated.

Yours, &c.,

433, *West Strand, London,* C. J. HUGHES.
May 3rd, 1858.

[When we inserted Mr. Maddison's *first* letter we were ignorant that he was commercially interested in photographic materials; with his *second* letter we expressed our opinion of the impropriety of his remarks relative to his own collodion except as an advertisement; but as he offered other information without reserve, we saw no objection to any of the remaining portion of his communication. We certainly committed an error in not erasing Mr. Maddison's name from the letter of Messrs. J. and T. Clarke; but to carry out the principle of "audi alteram partem," we retain the name in Mr. Hughes' letter *for this occasion only*, but for the future we purpose being more circumspect.

We wish it to be understood that in our correspondents' columns amateurs, professionals, and dealers are all equally welcome, but all must stand upon the same footing. Let the motto be Liberty, Equality, Fraternity.—Ed.]

PLACE FOR THE DIAPHRAGM, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Your great kindness in smoothing away the difficulties of young photographers, emboldens me to ask the solution of the following in the next *Journal.*

(1) How should I use a stop to take portraits between the lenses, or in front of them? (2) Will it be necessary to use a stop to take groups? (3) How can I take views with a quarter-plate portrait combination? (4) Will the bromide of cadmium have any effect on the keeping properties of collodion iodised with the iodide of cadmium? (5) I have seen it mentioned in the *Journal* that there were other compounds than those of silver sensitive to light; those of lead, mercury, gold, and platinum were mentioned. Is it possible to use any of them instead of silver?

May 1st, 1858. AN AMATEUR.

[1. Theoretically, the proper place for a diaphragm in a double combination as usually constructed for portraits is between the lenses; but as it is more convenient in changing the diaphragm to place them in contact with the front lens, they are generally so arranged for portraits; Mr. Andrew Ross has, however, recently adopted an adaptation of Mr. Lake Price, by which the diaphragms between the lenses can be readily varied without inconvenience. 2. Generally a stop is required for groups. 3. You can take landscapes of *small size* with a quarter plate combination, by placing a diaphragm with an aperture of about one-quarter to three-eighths of an inch between the lenses. 4. We do not think bromide of cadmium at all likely to injure the "keeping" quality of the collodion. 5. At present we cannot recommend you to try any substitute for the silver salts; some others *promise* well, but they require careful working out by *experienced* hands.—Ed.]

DISCOLOURED NITRATE BATH.

T the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—On Friday last I made some nitrate of silver solution, and after trying to take a picture I found that the solution had changed to a *brandy colour. I have made many baths, but never saw one like the one I have.*

I should feel obliged if you or any of your correspondents would answer me the following, on the point named above:—

1st. What is the cause of the solution becoming a brandy colour?

2nd. What is the remedy to set it right again, so that it will take a picture?

Should be glad to see the above questions answered in the next *Journal.* I am, yours truly,

April 25, 1858. J. M. S.

[The appearance described is most probably owing to the presence in considerable quantity of organic matter, that you must have inadvertently introduced into the bath; albumen would be very likely to produce it. The remedy we should recommend you to adopt is to expose the bath to the direct rays of the sun, in a transparent vessel for a day or so, which will cause the organic matter to reduce a small portion of the silver, and probably form an insoluble precipitate which can be filtered out; but if that does not discolour it entirely, throw down a small quantity of oxide of silver, by the addition of a few drops of ammonia to a solution of the nitrate of silver, wash the precipitate in distilled water, and add it to the discoloured baths of nitrate of silver, shaking well and allowing it to repose.—Ed.]

BLISTERING OF GELATINISED PLATES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I have for some time been trying the gelatine process according to Mr. Long's formula. When I want to develop the picture, I put the plate in a dish containing distilled water, and let it remain about five minutes; on removing it from the dish it is always covered more or less with small blisters. When the picture is developing in gallic acid the solution gets under the film, and spoils the negative. I took one this morning; it was sharp, dense, good half-tones, and every thing that could be desired, with the exception of the blistering.

Would you be kind enough to inform me the cause of the blisters, and how I may avoid them, and oblige, Yours respectfully,

Macclesfield, April 27th. 1858. C. M. P. S.

[The blistering arises from the unequal expansion of the gelatine and collodion film, the latter being most probably the culprit. It is very possible that if you use a much weaker solution of gelatine you may evade the evil complained of. We do not admire Mr. Long's modification of Dr. Norris's process, and very much prefer the original,—but "chacun a son gout." A collodion of which the pyroxyline is precipitated in a powdery instead of a stringy mass, on the addition of water, is generally the most advantageous to use for a dry process. See the following letter from Mr. Hill.—Ed.]

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Several of your correspondents have complained of the blistering and tenderness of the film of collodion in the dry processes (gelatine). Some time ago I noticed that plates immersed in the nitrate bath *immediately* after coating with collodion, were always blistered, so I gradually increased the time before immersion, keeping the plate in a *horizontal* position, till at last I got rid of the evil.

It is not advisable to use a thick collodion. I leave the plate from one to three minutes before sensitising, soak for five minutes before developing, and develop with pyrogallic acid two grains, citric acid one grain, water one ounce; add about ten drops of nitrate bath to the half ounce before pouring over the plate. I am, Sir, yours, &c.,

Islington, 6th May, 1858. D. W. HILL.

BREAKING OF VIGNETTES IN THE PRESSURE FRAME.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Having received numerous complaints of the vignettes breaking in the pressure frame, I beg to apprise my brother photographers of a plan which completely gets over this difficulty. Fasten the vignette with gum paper on to a piece of cardboard, having an opening cut in it a quarter of an inch smaller all round than the vignetting glass; then place the cardboard outside the plate glass, *i.e.*, between the plate glass and frame. By this plan the possibility of breakage is not only obviated, but additional softness is given to the picture.—Truly yours,

Liverpool, 11th May, 1858. J. A. FORREST.

[We find it a good plan to place the vignette glass *outside* the glass of the pressure-frame: it is easily retained in position by a slip or two of wood, attached to the wooden part of the frame.—Ed.]

TO CORRESPONDENTS.

Received—Communications from Herr Pretsch, M. Voigtlander, L. Reeve, E. Jones, J. A. Forrest. For review—*The Photographic Album, &c.*

An interesting communication on a Dry Process in our next.

Liverpool
Amateur
Photographic
Association.

The Liverpool & Manchester Photographic Journal.

New Series. No. 11, Vol. II.—JUNE 1, 1858.

Amongst the many sources of pleasure from which a photographer is capable of deriving gratification, there is, perhaps, not one which leaves a more lasting impression of satisfaction than the manifestation of that *esprit de corps* which prompts to a mutual interchange of kindly civilities, together with a mutual comparison of one another's mishaps and photographic experiences of a more successful kind.

We recently had occasion to pay a visit on business to the southern part of Devonshire, and we took the opportunity of communicating personally with several members of the confraternity whom we had hitherto known only by name, or not known at all, and in *every instance* we met with a reception which indeed leaves "a green spot in memory's waste." In all directions we found "dark rooms" and photographic conveniences of every description freely offered and placed at our absolute disposal, but, what is better still, accompanied with that hearty welcome which leaves no doubt about the sincerity and good feeling of the host. Neither was our visit unproductive in the way of gathering information and hints for further use; amongst which we may reckon some satisfactory results in the working of the collodio-albumen process, as practised by Mr. Widger, of Torquay, who very kindly prepared us some plates, our departure from town having been so sudden as to preclude the possibility of our making any anticipatory arrangements.

We were agreeably surprised at finding these plates far more sensitive than we had expected; and though the weather was of the most unfavourable kind for photography, being both wet and windy, we managed by their aid to obtain some pleasing reminiscences of the locality.

By the way, it is not a bad plan, when in search of a place for one's summer excursion, to obtain from some local photographer a few stereoscopic slides of the contemplated sojourning spot and surrounding neighbourhood, as by that means an inappropriate selection may be often avoided. Mr. Widger's stereoscopic slides of Torquay and the district give an excellent notion of characteristics of that spot.

In a conversation with Mr. Hele, of Teignmouth, relative to the washing of paper positives in order to free them from hyposulphite of soda, that gentleman suggested an illustration by which the advantage of the use of a *sponge* for this purpose, coupled with frequent change of water, over that of long soaking, might be made palpable to the eye of the merest tyro. It was this:—Take two sheets of photographic paper and saturate them with a solution of bichromate of potash till they are of an intense yellow colour, then leave one to soak for several hours in a large quantity of water; but place the other in a dish, and with a small quantity of water and a sponge press it and dab it well all over; change the water several times, and in a few minutes the yellow colour will have entirely disappeared; while that which was left to soak, even if the waters have been changed once or twice, will still retain some colour.

We are glad to announce the formation of a Photographic Society in Macclesfield, which was inaugurated on the 5th ult.; the only business transacted being the choice of officers and similar necessary but routine matter that does not call for special report.

The Committee of Liverpool photographers who have been charged with the investigation of the properties of glass best suited for photographic operating rooms, are actively at work; want of space on the present occasion prevents our inserting some interesting particulars of their doings, together with some suggestions of our own to these gentlemen, but the former, at any rate, we hope to give in our next. The same observation applies to a communication from Mr. Glover relative to his preservative solution, which will, no doubt, be acceptable to many of our readers, particularly as he replies to some points which we indicated as likely to be objectionable in its use; but this, also, is for appearance in our next.

The London Photographic Society opened their Exhibition in Coventry Street (at their own rooms), on the 17th ult., which consists of a selection from the South Kensington Exhibition, recently closed, together with a collection of newer productions. The French Society's pictures are also removed to Coventry Street, and are arranged in rooms appropriated solely to them. Here, again, we are compelled, from want of space, to postpone particular notice of the contents.

Mr. A. Ross, the well-known London optician, is about constructing some landscape lenses upon the "orthoscopic" principle, as it has been designated; he has also been producing some large-sized portrait combinations, with lenses of six inches in diameter.

We are anxious to see another arrangement, that was suggested to us by the late Mr. Archer, fairly carried out. We have made some experiments with it, and have no reason to be dissatisfied with the result. One of the principal objects is to obtain a much larger "angle of picture" than is generally included by the single lens. One of our Liverpool amateurs has also been experimenting in the same direction, and we expect shortly to be able to publish something upon the subject.

Upon a future occasion we may probably point out some attractive places for photographic operations, indicating not only favourable localities generally, but specifying where we have noticed some particularly choice bits as accurately as we can. We are convinced that if some of our contributors would do likewise, we should have an immense amount of fruitless labour, now lost in seeking, economized; and we would finally remark, that now is just the time for such hints to be most available.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

The last meeting for the season of this Society took place on Thursday, the 20th ultimo, at St. George's Hall, Liverpool, when there was a very large attendance of members.

Mr. Howe, from Messrs. Knight and Co.'s, Foster Lane, London, exhibited a number of the Petzval lenses, as manufactured by M. Voigtlander and Son, of Berlin. The subject was very fully discussed, but nothing new of any interest was elicited respecting them.

Mr. Atkinson exhibited a camera stand in the form of an umbrella, the invention of Mr. Hooper, of Manchester. It was remarkably unique and admirably suited either for a walking stick or a stand for a stereoscopic camera. A description of Mr. Hooper's camera will be given in our next number.

MANCHESTER PHOTOGRAPHIC SOCIETY.

We now give the conclusion of the report of the proceedings of the above Society at their meeting on the 5th ult., which press of matter prevented us from inserting in our last number.

Mr. William Ackland, manager for Messrs. Horne and Thornthwaite, Newgate St., London, thought the suggestion as to the stop one of the best he had heard for a long time, and intended taking the earliest opportunity of putting it into practice. Certainly photographers wished to prevent their skies being solarized. By the ordinary plan so much time has to be allowed for the foreground that the sky necessarily suffers, but with this contrivance the evil can be obviated. Mr. Ackland proceeded to describe the lens recently invented by Professor Petzval, of Vienna. Some parties had endeavoured to prove that this gentleman was not the original inventor of the new lens, but there was not the slightest doubt of the fact; he, for one, must give him the credit of it. This form of lens is applicable only for landscapes, not for portraiture generally, that is, in towns or in ordinary glass houses. It might also be used to advantage for copying. Mr. Ackland described its construction which is very peculiar, there being three convex and five concave surfaces; the effect is to elongate the lateral rays and thus produce a flat image. The light collected by this lens reduces the time necessary for taking a picture by one-fifth. Mr. Ackland exhibited a specimen (a newspaper broadside, very sharp and well-defined), taken by it, and regretted that a fire on their premises had destroyed others. In copying, these lenses are said to be superior to any before used, and require only about half the time of exposure which an ordinary landscape lens does. Mr. Read had remarked that M. Petzval called them "caloscopic" lenses; erroneously however, as this distinctive name was given by Messrs. Horne and Thornthwaite.

The Chairman said they were much obliged to Mr. Ackland for his explanation of the new lens, with which many then present were not acquainted before.

Mr. Ackland stated that the shorter the focus of the lens employed the sharper will two objects situated at different distances from it be in the picture; also that it is a question not definitely settled as to the best focal length for a lens to be employed to produce a picture of any given size. One of almost any focal length could be used, but we want *artistic* photographs; hence the question arises—providing we can get lenses of different foci to cover our ground glass, which is most advantageous with regard to artistic effect? It had been stated on very good authority in London, within the last few days, that a lens which produces a picture at an angle of forty degrees, is about the best that can be used, and this accords with his (the speaker's) own experience. Petzval's lenses take pictures at an angle of 41°, so that by them pictures are taken moderately sharp all over, thus producing very artistic photographs. We have hitherto been accustomed to use lenses of too long foci, those of fourteen inches focus, and not more than 30°, being generally employed to produce a picture nine inches by seven inches.

Mr. Ackland then introduced to the company a compact and ingenious stereoscopic camera that he had recently used in preference to the ield box, which contained eight plates in eight separate backs,and weighed,with the eight plates, only six-and-a-half pounds! He shewed the mechanism of the camera,which is adapted for avoiding delay, mistakes of forgetfulness, injury, &c.

The CHAIRMAN remarked that there was a prejudice in Manchester against taking the pictures at twice, the sitters being apt to move.

Another MEMBER thought Mr. Ackland would not find many photographers using single lens stereoscopic cameras.

Mr. ACKLAND said that in London the feeling was the reverse.

Mr. READ said he was quite sure that they would all accord Mr. Ackland a very hearty vote of thanks for his interesting information regarding M. Petzval's lens, and also for the very ingenious and beautiful camera he had exhibited. He had no doubt of the correctness of what Mr. Ackland had said in favour of the lens, and they owed him their thanks.

Mr. ACKLAND remarked further upon the relative positions of MM. Voigtlander and Petzval, and the peculiar feeling which the latter entertained towards the photographic public. The new lens, he said. was first introduced to the English public by M. Pretsch, in a paper read before the London Photographic Society,in which he told them that such a lens had been made under M. Petzval's directions. He (Mr. Ackland) saw sufficient at once to convince him that there was something very good in the lenses, and on consulting with Messrs. Horne and Thornthwaite, he was commissioned to proceed to Vienna to obtain all the information possible. When he arrived he found that M. Petzval had made a prior business arrangement with M. Deitzlar, and would not afford any information as to the theoretical principles upon which the new lens is constructed. Mr. Ackland, therefore, purchased one of M. Deitzlar, and on examining it found it to be of twenty-six inches focus to take a picture fifteen inches by twelve inches. Such a lens for photographic purposes would be, in his opinion, perfectly useless; so that, in fact, the lens had but very little improvement in it. The principles were there but they were not fully carried out. He (Mr. Ackland), therefore, determined to ascertain if it were not possible to materially shorten the focus and yet cover the same field. Then came the curious discovery that as he decreased the focus he increased the sharpness. He entered into the mathematical construction of it rather deeply, and succeeded in eliminating great principles. He thought he had discovered the principle upon which Petzval based his calculations; still he was not in a position to say that the lenses he had laid before them were made by any assistance he received from M. Petzval, who, having made a bargain, of course would not have been justified in departing from it; but it was to be regretted that he had confined it exclusively to one maker.

Mr. Ackland, at the desire of the meeting, promised to forward a specimen produced by this lens, and offered to send a lens to be tested by the Society, which offer elicited applause, and the Chairman said a committee should be appointed to test it and make a report.

The CHAIRMAN drew attention to another matter, which he said was becoming serious, namely, the fact that people were continually rediscovering inventions, so that it became quite a bore. He found that no less than four people had claimed to have invented the form of stereoscope made with whole lenses. Now here was a stereoscopic camera made with whole lens by Mr. J. B. Dancer, optician, of Manchester, in 1853, and used by him, along with Mr. Williamson, Mr. Grundy, and other members of their Society, both as a camera and as a stereoscope. He thought that this ought to be put on record, for, he believed, that M. Claudet patented the principle in 1854, and one or two other persons had patented it since. He also stated the constant use, during the past four or five years, of stereoscopic transparencies as slides in the magic lanthorn, about which people were constantly enquiring, as if it were a novelty, and there was some difficulty to be overcome. The thing was getting quite absurd; people were rediscovering processes as if they had never read the journals.

One other subject was mentioned by the Chairman. He said that members would remember that the other evening they had some photographic specimens on the table with a light line round the trees and buildings, giving a very curious effect or sort of halo. This phenomenon was remarked upon in the journals. He was speaking to Mr. Dancer upon the subject, and he had written to him as follows:—

> "Those photographers who have had much experience in printing from glass negatives, will doubtless have noticed in some paper positives that dark objects, such as trees, buildings, rocks, &c., are sometimes surrounded with a light margin. This is seen most distinctly with a bright sky for a background. If the negatives of such pictures be examined, it will be apparent (generally) that the plates have been over-exposed in the camera, a corresponding dark line being visible around the trees, &c., &c. The cause of this appearance, in my humble opinion, has a very intimate relation with molecular disturbance (caused by the light) on the sensitive surface of the prepared plate. Those who have experimented much in electro-metallurgy will have noticed the thickened deposits which frequently occur at the edges of the reduced metal, when the conducting surface suddenly breaks off. Sometimes cracks occur, interrupting the conducting medium, and then a complete wall of metal will form itself on each side of the crack. These marginal effects of molecular arrangement appear to be analogous to those exhibited by magnetic force. Had time permitted I could have sent you several illustrations, but perhaps I may refer to them at some future period. The phenomenon in question has been noticed in some of the photographic journals, and one gentleman has explained the cause by supposing an interference exerted by the heated air surrounding the objects. This latter explanation does not appear to account for all cases, as the same appearance can be produced in a picture taken from an engraving; possibly an effect may be produced by some lenses being imperfectly corrected for their chromatic aberrations; in this case the violet rays would no doubt exert some influence on the outlines of objects. Perhaps some remarks may be elicited by discussion, and I regret not being able to come and hear them."

The CHAIRMAN thought that Mr. Mann had some specimens with him.

The negatives were accordingly exhibited to the meeting.

A MEMBER remarked that as in these pictures the sky was nearly gone, the trees had robbed some of the light of the adjacent parts.

The CHAIRMAN: But why should they rob it?

Mr. ACKLAND said he had noticed the phenomenon once, and he thought it was due to the lens.

Mr. REED thought that was the principal cause.

The CHAIRMAN: Not in this case; because Mr. Mann has different sized lenses and cameras.

The CHAIRMAN exhibited an ingenious contrivance for carrying in the dark two or three plates in small compass. It was made by a designer in the employ of their firm. The ingenuity of the contrivance elicited admiration from the members.

The hour of separation having arrived,

Mr. COTTAM, the Secretary, stated that he should be obliged to postpone bringing under notice some interesting views or diagrams shewing the relative heat of the sun, as measured by a mechanical contrivance.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

THE usual monthly meeting of the members o this Society, was held at the Chorlton Townf Hall, on Wednesday Evening, May 12th, when a paper "*On the Wax Paper Process*," was read by Mr. WARDLEY, but as this process has been so frequently described in these pages, and we are not in a condition to afford much space at the present moment, we must content ourselves with giving a few condensed extracts of those points which we deem specially worthy of attention.

The author considers that the waxed paper process is one specially suitable for use in localities destitute of the convenience of railways for the transport of heavy masses of glass, while it is peculiarly adapted for producing softness and delicacy of effect, particularly with bold rustic subjects.

It is presumed that in all prepared sensitive surfaces, whether on glass or paper, decomposition commences almost immediately, and that this gives rise to an augmented sensitiveness to the actinic impression up to a certain point, beyond which a gradual but rapid detereoration occurs until it becomes altogether unfit for use.

The dishes recommended for the various operations are those constructed of a piece of sheet glass, with wooden sides, well varnished with shell-lac.

It is recommended also to make a fresh iodizing solution each season, as the author considers that an old one does not produce papers as sensitive as when prepared from new, while he also advises that after exciting the sheets should be washed but once, as they are more impressionable under this treatment, and although they do not "keep" so long as when more thoroughly freed from uncombined nitrate of silver, this is not of much importance, as even if they become embrowned, they are capable of complete restoration by a re-immersion in the sensitizing solution and again in the exciting bath, when they become even more sensitive than at first. Of course this operation will not answer if the sheets have been submitted to the developer, though it is of no consequence their having been exposed.

This latter observation is one well worthy of the attention of paper operators.

The process was illustrated by the preparation of the paper, the development of pictures, and the display of a large number of excellent negatives, several of which, for delicacy of detail, especially in the shadows, were scarcely distinguishable from those procured on glass plates.

Votes of thanks were passed to Mr. Wardley and to the Chairman.

The next meeting will be held on Wednesday, June 9th.

BLACKHEATH PHOTOGRAPHIC SOCIETY.

AT the Annual General Meeting of this Society held April 19th, at the Golf Club-house, the President, JAMES GLAISHER, Esq., F.R.S., in the chair,

The minutes of the last meeting having been read and confirmed, a Report of the transactions of the Society during the past year was read and unanimously approved, and it was resolved that it should be printed and circulated among the members of the Society.

The following list of Officers for the ensuing year was then submitted to the members, and the whole were duly elected by ballot:—

President.
James Glaisher, F.R.S.

Vice-Presidents.
George Busk, F.R.S.
Francis Bennock,
Charles Heisch, F.C.S.
John Penn, C.E.

Treasurer.
J. B. Spencer.

Secretaries.
T. R. Wheeler, M.R.C.S., &c.
T. B. Wire.

Other Members of Council.
S. Duer,
J. M. Burton, M.R.C.S.
J. Harding,
T. H. Howe,
E. W. James,
Osmer King, M.R.C.S.
E. H. H. Ledger,
J. South, F.R.S.
F. Spurrell,
H. T. Wood.

Mr. HEISCH, V.P., made some observations on the views of Niépce adverted to in the Report, and commented on a lecture recently delivered at the Royal Institution, by Mr. Grove. He stated further, that if the views of Niépce were correct, it followed that sensitive paper kept in an envelope which had itself been exposed to the sun's rays, would be secondarily affected, and he suggested that many sources of failure which had hitherto puzzled photographers might possibly be thus accounted for. It was necessary, in his opinion, that sensitive paper should be preserved in envelopes which had imbibed, so to speak, as little light as possible, whether direct solar or diffused.

Mr. HEISCH then read the following paper "*On the simultaneous Photography of variously Coloured Objects.*"

Mr. President and Gentlemen,—The subject to which I purpose calling your atttention this evening is one of great interest to all photographers; and one presenting, as we all know, considerable difficulties—difficulties which I do not profess by any means to have perfectly vercome, but towards the surmounting of hich I hope to be able to shew you that I ave made at least some progress. Long since, ir J. Herschell stated his belief that if we wish o obtain good representations of foliage, that , of green coloured objects, it is to bromide of ilver we must look as the sensitive agent. The nages of the spectrum, obtained by Mr. Crookes, n bromide of silver, shew that that salt is more ffected by the green ray than the iodide of ilver. But bromide of silver alone is too in-ensitive for ordinary photographic purposes, nd it has been a pretty general custom, at east in paper photography, to employ a mixture f both salts, with a view of securing the ad-antages of sensibility both to ordinary and to oloured, more especially to green light.

In the early part of the year 1852, I pub-shed a formula for waxed paper, in which I tated my belief that the best effects were pro-uced when the iodide and bromide and chloride f silver were united in the proportion of four quivalents of the first, two of the second, and ne of the last salt. Ever since that time I have onstantly used paper thus prepared, and have ompared it with that prepared by almost every rmula that has been published, and six years xperience has only served to convince me of s superiority.

The almost universal practice of using iodide lone in collodion, coupled with the broad asser-on of some photographers, whose opinion is enerally admitted to have some weight, that e green bodies met with in nature reflect so uch white as well as green light that bromide f silver is not required for their reproduction, nd indeed that if present in conjunction with dide the latter will be solarized by the white ght before the bromide is affected by the green, duced me again to take up the subject, with e determination of trying such experiments as ould leave no doubt on the main facts, what-ver room there might be for improvement in ny particular formula. Before bringing the esult of these experiments under your notice, should like to say one word on the assertion bove alluded to. It is taken for granted, by ose who make it, that paper or collodion pre-ared with mixed bromide and iodide of silver ontains those two salts simply in a state of ixture, and that the light acts independently pon each of them as it would were they separate. do not believe that such is the case; and I ill lay before you one or two facts which I can nly account for on the supposition that there is chemical compound of iodide and bromide of lver on which the action of light is somewhat ifferent to that on either salt separately. To lace these facts most easily before you I must efer to the daguerreotype process, which I can-ot but regard as a sort of type process, inas-uch as the discrepancies introduced by varia-ons in collodion or paper, and the various sol-ents employed, have there no existence, and e can better determine the action of the pure lver compounds.

All who have practised this process are aware at in it bromine must be employed to obtain ything like sensibility. They also know that reat attention must be paid to the precise pro-ortions of the bromine and iodine; and that, if this be done, the plate will possess two, at first sight, contradictory properties, viz., great sensibility, together with the capability of standing a sufficiently long exposure to copy the darkest parts of an object without the lighter portions being in the least solarized. These properties depend not on the absolute quantity of iodine and bromine present, as a plate may be iodized to a light yellow and bromized to a pink, or iodized to a deep yellow and bromized to a plum colour, and give equally good results, provided the proper proportion be observed between the two. Now, I can only account to my own satisfaction for the extreme nicety required in proportioning the two substances, and the great difference at once observable if either be in excess, by supposing the existence of a chemical compound possessed of the two properties before alluded to, which properties certainly do not exist in either of the salts alone. I know of no way in which positively to determine if such a compound be formed on the plate, nor indeed of determining the precise amount of bromine and iodine present, so that, in attempting to obtain the same desirable properties in paper or collodion, I was reduced to trying various mixtures, always taking care that they should be in combining proportions. Various considerations, however, induced me to think that the proportion of two equivalents of iodine and one of bromine would probably be the best, and experiment has at present tended rather to confirm that view, although I am by no means sure that there is not more than one proportion possessed of the desired properties. The addition of chloride to the iodizing solution for waxed paper gives, I believe, a certain amount of density not otherwise attainable. I at first thought that this too must be in equivalent proportions; but I incline now to the belief that if there be a sufficient quantity of the properly proportioned bromide and iodide present, the precise amount of chloride is not so material.

In order to make the experiments, the results of which I shall now shew you, as crucial as possible, I sought for objects presenting as many and opposite colours (photographically speaking) as possible, and the first selected was the circle chromatique of M. Chevreuil, but, on photographing it, every colour produced an equal effect, red, blue, and yellow all having the same tint, shewing me at once that it was not among artificial, or, at least, mineral colours that I must look for objects for these experiments. I would here shew to the Society a copy of a number of different coloured porcelain tiles, taken by my friend Mr. G. Hoffman. The composition of these colours being known, some clue is given to the apparent mystery of the result with the circle chromatique. You will observe that the presence of certain substances in a colour, although producing but little apparent effect, materially alter its photographic properties. This is very remarkable in Nos. 8, 9, 10, and 11; the first three being various shades of cobalt blue, and the last a greenish black, produced by manganese, iron, and cobalt, yet they produce very nearly the same effect, seeming to shew that the small quantity of cobalt present gives great chemical energy to the last colour, *though its effect to the eye is* *slight.* I shall go on working at this part of the subject, and hope at some future time to have some curious results to lay before the Society. I next turned my attention to flowers, and found in them all that I could wish. The flowers selected for the experiments were white and red camellias and daffodils, thus giving me a mixture of the most brilliant white, dark green, red, and yellow. In the first pictures which I shall exhibit there are red and white camellias only.

The collodion, alcohol, &c., employed were, of course, the same, the only difference being in the proportion of the iodizing substances. All the samples were iodized at the same time. The plates were exposed for exactly equal times, and in order to avoid any error from changes in the light, pictures were taken alternately on the various mixtures for some time. Thus, out of the negatives I now produce, six are on simply iodized collodion, some on collodion prepared with equal weights of iodide and bromide, some with one equivalent of each, some with two equivalents of iodide to one of bromide, some with the the same and the addition of half an equivalent of chloride, and some with one-fourth by weight of bromide and three-fourths iodide.

An inspection of these will at once shew that the presence of bromide is an immense advantage. In those prepared with iodide alone the white is overdone, and the green leaves still invisible, while the greens are well out in those containing bromide. I think it will also be admitted that those in which the iodide and bromide are in the proportion of two equivalents to one possess the property of sensibility to the red and green, with the absence of solarization in the white, more perfectly than the others. These pictures were all made on collodion which had been iodized some weeks, on which account the iodide gave even better results than it otherwise would. Those now produced were made on collodion iodized the day before, and here we see the full effect of the bromide. You will notice that the white camellia, in those prepared with the iodide alone, is not as in the former pictures simply a black, but is altogether gone and become quite transparent; while the greens, and even the basket containing the flowers, are scarcely visible; but in those prepared with bromide the whole are well preserved.

For ordinary purposes there is not either in collodion or paper photography the necessity for the same minute exactness in the proportions as in the daguerreotype. This is easily understood, if we remember the much larger quantity of silver salts present in former processes; for if there be a considerable quantity of the true compound, the admixture of a small excess of one or other salt could not make the same difference as when only a few hundredths of a grain are present in all; but when we come to the most difficult cases, such as those we have been considering, the nearer we keep to the strict proportions the better, I think, are our results.

In those pictures containing the daffodils it will be observed that the yellows present the greatest difficulty; as although in the best with the bromide, every petal is depicted, while with the iodide the flower is a simple blot; still it is much darker than it should be. As an illustration of the working of the mixture on paper, I would bring forward this picture of the Roman Catholic Church, on Crooms-hill, Greenwich, in which we have a very white stone steeple standing out against the sky, and a number of trees and a bank of nettles beside the church. You will observe that the steeple does not merge into the sky; while the trees and nettles are perfectly represented.

I must remark, in conclusion, that I do not pretend to have arrived at a *perfect* result; all I wish is to point out what I believe to be the only road in which we can hope to meet with it, viz. by endeavouring to make chemical compounds, and not random mixtures.

As some of the members of the Society may like to know the precise iodizer employed in producing the best results, I subjoin it—

Iodide of ammonium	36 grs.
Bromide of ammonium	12 ,,
Chloride of calcium	3·5 ,,
Absolute alcohol......................	2 ozs.

One part of this to be mixed with three of collodion.

I wish it particularly to be understood that I by no means deny the *possibility* of obtaining photographs of foliage, &c., on iodide of silve alone; by prolonged exposure it is quite possible, provided there be no very bright white o blue objects present with the green. What I assert is, that when combined in proper proportion with bromide, it is far more sensitive and that the whites do not solarize.

A vote of thanks having been tendered t Mr. Heisch, the meeting separated.

NORTH-LONDON PHOTOGRAPHIC ASSOCIATIO

At an ordinary monthly meeting, held at Myddelton Hall, Islington, George Shadbolt, Esq. Vice-president, in the chair, the minutes o the previous meeting having been confirme the following gentlemen were duly electe members, Messrs. C. J. Hughes, — Zambra C. Hazell, Dr. Maddox.

The Rev. John Winter read a paper, entitle "*Observations on the Calotype Process,*" and exhibited a number of excellent negatives, and vote of thanks was accorded.

A discussion ensued, in which many member took part.

Mr. Ryley exhibited a transparent positiv taken on dry collodion upon a support of groun glass, the collodion, after excitation, bein simply wasbed and dried. The ground glas not only prevents the blistering of the film, bu also adds materially to the sensitiveness, an negatives thus taken present no difficulties i the printing subsequently, as varnishing th plate entirely removes the obscuration of th roughened glass.

There were also exhibited some successf negatives, produced by Mr. Fothergill's proces by Mr. Shane; a very portable camera an stand by Mr. Tilfer; a series of views by th dry collodion process by Mr. Morgan; an ingenious double back for stereoscopics by M Bingham, in which a single button retains bot of the sliding fronts in positions, or admits either being slid out at pleasure.

Notice was given that at the next ordinary meeting the presentation photograph would be distributed to members, and also that the committee are desirous of borrowing negatives for obtaining proofs for that purpose, and invite the members to grant the loan of such as may be considered available, and which may be forwarded to the Hon. Secretary, Mr. J. S. Moon, 11, College-street, Islington.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE monthly meeting of this Society was held at the Oddfellows' Hall, on Tuesday. Mr. Wm. HOWELL, one of the Vice-Presidents, occupied the chair, and there was a good attendance.

After forty valuable photographs, purchased out of the fund of the Society, had been distributed amongst the members by ballot, an interesting paper "*On the Application of Photography to Business Purposes*," (of which we shall give an abstract in the next *Journal*,) was read by Mr. ROWLAND BOURNE. He produced photographs of centre pieces, ecclesiastical furniture, cruet stands, toast racks, &c., in proof of the ease with which the manufacturer could fill his pattern book, instead of employing draughtsmen and engravers to supply transcripts of questionable accuracy. These photographs had been executed by Messrs. Padbury and Dickins, lithographers, Sandpits, Birmingham. From observations made by Mr. W. B. Osborn and others, the chief difficulty in the way of successfully applying photography to the copying of silver goods, seemed to be the radiation of light for the bright surfaces; but Messrs. Padbury and Co. used oil to prevent this, and certainly with complete success in some of the specimens.

Mr. HOWELL suggested that the light might be so obstructed as not to fall fully upon the article copied.

Mr. OSBORN said that one manufacturer who made the experiment had been deterred by the cost, but the charges in this case had evidently been much more than they need now be.

A vote of thanks was passed to Mr. Bourne for his paper, and Mr. Howell closed the meeting by a few words of advice as to the importance of photographers jotting down, at the moment, any idea or observation that might occur to them while engaged in practising the art.

THE NEW LENS CONTROVERSY.

IT is with much regret that we find such men as Professor Petzval and M. Voigtlander carrying their animosity to such an extent as to import into their controversy relative to the construction of the new landscape lens, an amount of personal vituperation that it is quite painful to witness, and this for a mere trifle. Professor Petzval introduces a landscape lens new in construction (that is so far as the public are concerned); M. Voigtlander simply *denies the novelty* upon the ground that he himself constructed such a lens *seventeen years ago* under Professor Petzval's own superintendence, and from drawings of the latter's own delineation—"voila tout."

We have received communications from M. Voigtlander through Messrs. Knight, and from Herr Pretsch on behalf of Professor Petzval, in reference to what we published upon a former occasion: we therefore give below *extracts from both letters*, omitting simply personalities and extraneous matter. We also append some extracts from a communication of Professor Petzval's which appeared in the last number of *Photographic Notes*, bearing upon the same subject, as we may have to comment upon the whole hereafter.

(From Messrs. Knight's communication.)

"It may have been a year after Daguerre's discovery, that, when calling upon Professor von Ettingshausen, I was asked by that gentleman whether I could determine the refracting and dispersing power of different sorts of flint and crown glass? Answering in the affirmative (having been occupied for a long time in determining these questions), I was informed that Professor Petzval had made the calculation of a photographic lens, which could not be executed for want of the qualities of the glass to be employed. Professor von Ettingshausen asked me to call immediately on Professor Petzval, giving me a letter of introduction to him, saying, that by furnishing the means to execute this lens I was rendering to the world a great service, and securing for myself a high reputation; I presented the letter to Prof. Petzval, was well received, furnished the above-mentioned qualities of the glass, which formed the foundation of the calculation of two combinations of lenses executed by me, the one well known since seventeen years: *the other, the same as now presented to the world by Prof. Petzval as newly-constructed; the original drawing of these two lenses, from the hand of Professor Petzval, together with the statement of the curves, is still in my possession.*

"I said nothing new appeared till last year, when the so-called 'new lens' came out, and which I recognized immediately as alike in principle and with little differences of the curves to the one I had made seventeen years ago, which discovery caused me to address to the Academy of Vienna a memorial, in which I raised a protest against this lens being called *new*. I claimed my right, not only to the priority of the first execution, but also of my partnership, in some measure, to the scientific part of the work. I offered to shew that this lens, not new in principle, was to be called identical with the one constructed seventeen years ago, in spite of the apparently great difference of some of the curves, as the effect of both lenses was much the same, only the focus of the new lens is shorter; and a mere revisal of the former calculation of Professor Petzval, or even a new calculation, could never vindicate for this lens the name of new. *The way to obtain a certain object may be new*, but that denomination cannot be transferred upon the object itself, if this remains in both cases much the same. I chiefly wished to shew by this memorial that Professor Petzval was guilty, in my eyes, of an injustice, by not mentioning that this lens had been made seventeen years ago by me.

"Regarding my assertions about the new lens, I refer to my statement on that subject. I protest against having mentioned the new lens amongst the 'unsuccessful' trials; in my memorial I said that both the lenses had been put aside, not being found *quite satisfactory:* in that memorial I never mentioned Professor Petzval not being satisfied with my productions; the copy of that memorial is before me, but I cannot find even the slightest allusion to it which might be misconstrued; this would be contrary to truth, little flattering to myself, and carrying modesty rather too far.

"I wish to know how *I* can be called the 'Inventor of the Chemical Focus?' *I*, who, as far as concerned the working of the lens, was only the instrument of Professor Petzval.

"I should indeed like to know how Professor Petzval could have been able to avoid that difference in the first period when nobody was yet well aware of the great difference in the chemical action of the differently coloured rays. With reference to my not working according to his calculations and putting his name in my list of prices, I have simply to say that *I was authorized to do so at first*, and as all my other lenses have been only the result of multiplying aperture and curves of the first lens with 1·5, 2, &c., I could not consider them changing, by this simple process, their nature, and not being any more according to Professor Petzval's calculation. Should I perhaps have said they were calculated by me, I suppose in such a case Professor Petzval would have been amongst the first to proclaim this as the height of presumption, and with perfect right too; it is very obvious that, after having sold thousands of lenses, now up to the number of 7,200, I might well have dispensed with his name, had I not continued to put it on my list *in justice to him*. I cannot find it fair to put such misconstruction upon an act of mine done in deference to Professor Petzval.

"I had very nearly forgotten that I have yet to repulse the last of Professor Petzval's attacks, viz., 'my memorial having been rejected by the Academy as an absurdity.' It is quite true that my memorial was not accepted, but when this was noticed to me it was accompanied by a somewhat detailed explanation, and the wish expressed I should get by this the conviction that the Academy was not in a position to act differently, inasmuch as the whole object did not come within the sphere of its operations; and it was stated, that if such a memorial had been presented even by a member of the Academy it could not have been accepted, the Academy never entering into such discussions; besides this, I am in possession of some letters from one of its members, from which it appears that my memorial was very far from being regarded 'as an absurdity.'

"I am ready to prove every word I have said, by *witnesses*, *letters*, and *documents*. I am writing now a longer memorial on that subject, in my own language (at which I feel certainly more at home), which I shall publish; and, should this affair be carried further, I shall perhaps come to England to plead my cause personally, and to give positive proofs of all my assertions to all those who take an interest in this case. "VOIGTLANDER.

"Brunswick, April, 1858."

67, *Great Portland Street, London, W.*,
May 6th, 1858.

SIR,—I am very sorry being obliged to address you again about a matter which has been, I think, treated with more haste and warmth than necessary. Permit me, therefore, to state some facts to you, and to add the description of the lens, so often asked for.

The report of Professor Petzval's researches in optics and dioptrics, has been for some months in the hands of the Photographic Society in London, and I have been informed by the Secretary that an English translation of it will be published.

It contains valuable information about the manner in which he obtained his results, and of what nature these results are: but they do not, and cannot contain the complete theory of them.

This theory is a corollarium of the general analytical researches about the course of a pencil of rays through a system of any number of refracting and reflecting surfaces of rotation. The present lens is only dependent upon a part of this complete theory, but the theory of it cannot be separated from the total scientific construction.

The following is the description of the lens, the absence of which has been so often lamented. The new "objective" consists of *two* achromatic lenses. The first or front combination is almost plano-convex, the convexity turned towards the object to be taken; its constituent parts being cemented together. At a distance of about one-sixteenth of the focus of the first follows the second achromatic lens, consisting of, firstly, a bi-concave, the shallower curvature turned to the object, the deeper towards the image; secondly, a meniscus, with the concavity towards the object.

The curvature of the image produced by the well-known combination for portraits is of fifteen inches radius: the image of the new lens possesses a curvature of eighty inches radius; therefore the curve is five times softer, and people, having found the picture of the portrait lens "tolerably even," will be most probably satisfied with the evenness of the second one, which will reproduce an even picture from objects *suitably placed*.

It was not the intention of Professor Petzval to substitute the new lens instead of his portrait combination; his aim was to enrich the optical means of photography.

The peculiar superiorities of the new lens are, viz.:

1st. A perfect correctness of perspective and delineation.

2nd. Sharpness of picture, which allows, if carefully rectified and focussed, the examination with a magnifying power of twelve times, or two-thirds of an inch, focus.

3rd. Equal distribution of light over all the surface of the image, in the centre as well as in the corners and edges; the size of the picture being sixteen by twelve inches, or of twenty inches diameter in a circle. Compared with the combination for portraits, it proves a superiority in the proportion of one to ten.

About the question, "How the small lens differs from the diaphragm in the ordinary landscape lens?" Professor Petzval himself will perhaps reply.

I am, sir, your obedient servant,
PAUL PRETSCH.

(From "Photographic Notes.")

"No lens, nor combination of lenses, can be so constructed as to reproduce objects at long and short distances on one and the same plane. This is an absolute impossibility in optics. To suppose such a thing possible is an absurdity, which can be easily exposed.

"It is needless to explain here how it happens that we nevertheless can take equally sharp pictures on one and the same surface, from objects at short and long distances, and even with full aperture, because this has been explained by Mr. Grubb, at page 172 and following, in the *Journal of the Photographic Society;* and I cannot add anything of importance to these observations, except that he has estimated the difference of distances a little too short, and that he did not consider the circumstance of the real aperture of the lens being not three inches but two-and-three-quarter inches. He treats, therefore, the sharpness of the image a little too slightly, which can be proved to anybody by examining the photographic picture by means of a magnifying glass.

"We may here repeat the very simple but important rule to photographers going to take an equally sharp, or *perhaps an equally unsharp picture*, to rely not only on his lens, but also on his experience, and on the construction of his camera.

"The second capability which ought to be discussed, is the mode of obtaining a perfectly flat picture. The construction of such a lens would not only be possible but in fact I myself possess tables for the combination of lenses which are able to produce pictures with less curvature, and also tables for the construction of lenses which are capable of producing perfectly flat pictures. But it appeared to me, that the curvature of a paraboloid of revolution, with about eighty inches radius of curvature at the vertex, would be just suitable to the greater number of practical purposes. My new lens, with three inches aperture, possesses this peculiarity, and it remains constantly the same, whatever the distance of the object from the lens may be, therefore, also in the case if the object to be taken is situate at a great distance from the lens. Consequently the lens possesses, and ought to possess, the capability of reproducing from a flat picture, an image curved in the mentioned proportion; but it will reproduce from a picture, curved in this proportion, a faultless image of the fifth order.

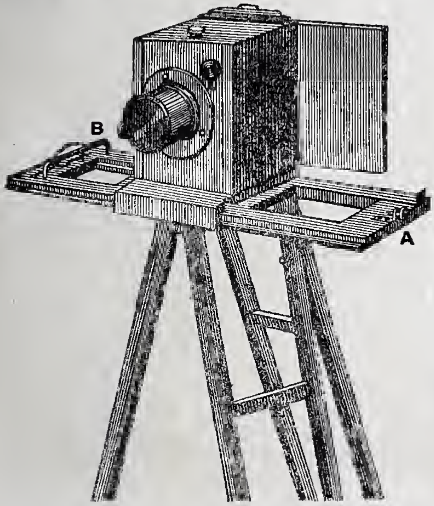
"If we are obliged to take objects in *unfavourable positions*, perhaps in quite a contrary position to that required, near and far objects on the same place, or near to each other, in this case we can only obtain a good picture by using a more or less small diaphragm, and allowing a longer time for exposure.

"The human eye is also a camera obscura, but a very little one. The limits of its efficiency are from eight inches to an indefinite distance. A lens of eleven inches focus will reach from twenty steps to the indefinite;—a lens of twenty-six inches focus from one hundred and twenty steps to the indefinite;—and if we should construct an instrument of still greater dimensions, perhaps of fifty-two inches, we should be enabled to take, without a diaphragm, pictures of objects whose distance from the instrument is from five hundred steps to the indefinite. These are the troubles in photography which are indispensably connected with the production of large pictures." PETZVAL.

NEW STEREOSCOPIC CAMERA.

By Mr. W. Hislop.

The following is a description of a New Stereoscopic Camera exhibited by Mr. W. Hislop at the meeting of the North London Photographic Association, April 29th, 1858.



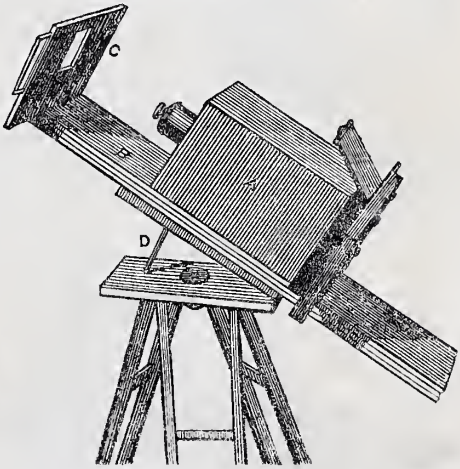
The camera is of any ordinary construction, and is mounted on a slide moving easily on a straight platform, which may be made of extra length, and be hinged in the middle for the convenience of packing. The camera is affixed to the slide by means of a bolt or screw, in such a manner that it can be placed at an angle with the platform on which it slides. A small screw is seen at A, which bears against the side of the camera towards the front, when it is pushed to the left for the second picture. At B is a bent piece of brass, which can be placed in a series of holes made along the platform at different distances, commencing at 2½ inches from the left hand, the minimum angle for stereoscopic pictures. This bent piece of brass also bears against the side of the camera when brought up to it, and thus adjusts it to a right angle with the platform. To adjust for convergence, the camera is first pushed to the right against the stop. The point of the picture on which the pencil dots on the focussing glass fall having been noted, the camera is passed to the left, and the screw is turned until the dots fall upon the same point again. It is now pushed back to its first position (the stop adjusting it at right angles), and the first picture is taken. The slide is pushed in, the camera passed over, and bearing against the screen is forced into exactly the same amount of convergence for which it had been previously adjusted, and the second picture is taken.

The advantages of this plan are,—simplicity of manual adjustment in the first instance, one operation being sufficient, and afterwards, its perfect self-adjusting action, as the camera *must* be brought to the same bearing if pushed home. Its cheapness and portability will recommend it to the amateur photographer.

APPARATUS FOR PRODUCING TRANSPARENT POSITIVE STEREOGRAPHS ON WET COLLODION, OR FOR MULTIPLYING NEGATIVES.

By Mr. W. Hislop.

In addition to the camera described above, Mr. Hislop also exhibited an apparatus for producing transparent positive stereographs on wet collodion, or for multiplying negatives, of which we give the annexed diagram and description.



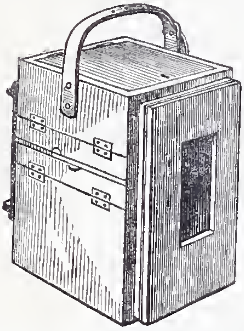
It consists of a camera about nine inches long with the ordinary back and dark frame for stereoscopic plates. The camera is clamped upon a board, B, about two feet long, by a screw passing through a slot, thus enabling the camera to be placed at a greater or less distance from the negative or picture to be copied. The latter is placed within grooves on a frame, C, screwed at the end of the deal board. The whole is fastened to an inclined frame, D, hinged to admit of being placed at any angle pointing to the sky. The lens may be the ordinary stereoscopic view lens or a portrait lens with a small stop. To use the apparatus, place the slide to be copied with its *right hand* picture in the opening in the frame, and the plate being prepared in the ordinary way and placed in the dark frame, take the first picture. Pass the slide from left to right and the dark frame from right to left, and take the second picture. I prefer a single lens as perfect uniformity in the picture is thus secured. The advantages of this method of producing transparencies, or copying negatives, are its simplicity combined with economy and expedition, the possibility of altering the size of the picture, and the capability of copying a picture through glass, thus allowing negatives to be protected from injury by covering them with a plate of glass.

THE TOURIST'S STEREOSCOPIC CAMERA.

The season for operation in the field having commenced, a description of the above-named apparatus, which was exhibited by Messrs. Horne and Thornthwaite at the meetings of the North London Photographic Association, 29th April, and also at the Manchester Photographic Society, 5th ult., may probably prove of interest to some of our readers.

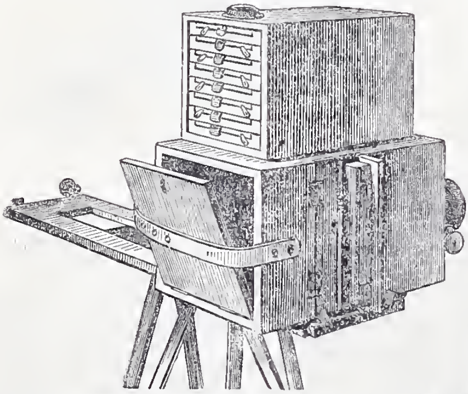
One of the chief peculiarities of this instrument is its compactness and portability, as will at once be admitted by an inspection of Fig. 1, which represents it as packed up for carriage by hand, the dimensions being about eight inches in depth by about six inches square, two sides being rather more and two rather less than quoted. In this space is included the camera, with focussing screen and eight sliding backs for the prepared plates, two lenses of different foci, and a converging table, and the weight of the whole is something less than six pounds.

FIG. 1.



There are several new features in the instrument before us which merit attention. Fig 2 represents it as set out ready for use. The camera itself is made to answer the purpose of a case to pack the several parts in, and is therefore somewhat larger than is absolutely requisite for the pictures of a size usually taken; but this adaptation is, in our opinion, a move in the right direction, and one we have long advocated. We never could reconcile our notions to the idea of a packing case to carry the camera in, thereby adding both to the weight and the trouble in getting ready for action. The spirit-level attached to the camera is an addition, convenient to the operator. The converging table is the contrivance of Mr. Hislop, and is not only unusually portable but effective, allowing of any reasonable amount of lateral movement, thus accomodating those who hold extremes of opinion upon this point in either direction. A special description of it will be found in another column.

FIG. 2.



ON THE WET COLLODION PROCESS.

By Mr. J. A. Judge.

Read before the North London Photographic Society.

(Continued from page 124.)

In addition to the cloths already enumerated, a piece of fine muslin is also required, which (like the other cloths) should be always kept scrupulously clean and free from dust.

The glass plates must, if of a large size, be of patent plate, the edges being ground or removed by scraping one plate against the other, taking care not to scratch them during the process, and rinsing them in water immediately the operation is over. If they were placed face to face, the small particles of glass rubbed off the edges and adhering to the plate, would inevitably scratch its surface, and render it unfit for use. If of a small size, not larger than 3¼ by 4¼, French white glass may be employed: it is not as flat as patent plate, and consequently is more liable to fracture whilst under pressure in the printing frame; the smaller sizes are generally carefully picked by the dealers—its cost is much less than that of patent plate.

The camera should be occasionally wiped inside with a damp cloth, and the dark slides, when not in use, stowed away in a cupboard or other receptacle, to keep them free from dust.

The collodion should be used from a long thin stoppered bottle, which will allow floating particles of film, &c. to subside, and prevent them being disturbed whilst coating the plate. Two of these long bottles should be provided, one to contain the collodion in actual use, the other with the spare supply. This latter, especially in hot weather, should be considerably thinned with ether, and as the collodion diminishes by use and evaporation, the bottle should be replenished from the stock. The advantage of employing two bottles is this:—the ether evaporating more rapidly than the alcohol, if not re-thinned, the collodion would become unworkable. If thinned with plain ether, you would be liable, by adding too large a proportion of it, to precipitate the iodide of potassium, and you would get spotty plates in consequence. The collodion should be mixed over night, but is better when several days old. When working with large plates, with an extensive evaporating surface, use a thin, comparatively under-iodized collodion. Keep the necks of the bottles free from pieces of dried film, which might be carried on to the plate, and give rise to specks and blemishes. When learning, keep to one collodion from a good recognised manufacturer, until you are pretty well advanced. By using different specimens of collodion you are very liable to be led into error, and your progress may be considerably retarded.

I should strongly dissuade a beginner from making his own collodion. Even in the most skilful hands it is a very ticklish affair, and the beginner would derive considerably more annoyance than profit from the attempt. When proficient let him make it by all means, if he considers that by so doing he will obtain it cheaper than by purchasing from a well-known house; but while learning the manner of using the chemicals, let him avoid dabbling in the manufacture of them as much as possible. It will be unnecessary for me to allude further to collodion, a paper on that subject having been, I believe, recently read before this Society.

About the best material for a dipping bath is gutta percha; it should have a piece of wood attached to the back, to prevent its bulging out and rendering the glass plate liable to be thrown off the dipper. It is well to be provided with two dippers, so that in case of accident the plate may be fished out without loss of time; a piece of stout cane with a slit at one end is a very convenient instrument for the purpose. A new bath of gutta percha should never be used until well seasoned. This is effected by filling it with a weak solution of nitrate of silver, which is allowed to remain in it for a week or so, or until required; it is then well washed with rain or distilled water, and it is fit for use. It is decidedly false economy to use a bath only just large enough to contain the plate. With so small a quantity of solution it rapidly gets out of order, and is the source of much annoyance to beginners.

I may mention that the Council of the Society of Arts have just appointed a Committee to direct the institution of a series of experiments in gutta percha, with reference to the nature and causes of its decay, &c. The Committee invite the co-operation of those who have had any experience of it. Perhaps some of the members present may have made experiments or observations touching the action of nitrate of silver upon that substance, in which case the Committee would be happy to receive any information on the subject. The queries to which replies are solicited will be found in the *Journal of the Society of Arts*, April 16th, 1858.

The bath should be of the strength of from thirty-five to forty grains of nitrate of silver to the ounce of water, and should be saturated with iodide of silver to prevent it attacking the plates when immersed in it. It can be prepared as follows:—

Nitrate silver, re-crystallised, and free from nitric acid	1½ oz.
Distilled water	2 ,,

Dissolve.

Iodide potassium	6 grs.
Distilled water	1 oz.

Dissolve.

Pour the solution of iodide potassium into that of silver—the precipitate of iodide of silver formed by the interchange of the bases will be almost immediately dissolved—then add seventeen ounces of distilled water (making twenty ounces altogether, imperial) to the mixed solutions; the iodide of silver, by this addition, owing to its insolubility in water, will be re-precipitated in the form of a fine yellowish powder. The bottle containing it must be kept in a warm place for twenty-four hours or so, occasionally shaking it, or until the greater portion of the iodide has again been re-dissolved. The bath will now be almost completely saturated with the iodide of silver; however, it will still attack plates immersed in it, and to prevent this injurious effect upon the sensitive film, either a small portion of iodized collodion must be poured into it, or, if preferred, a large glass may be coated with collodion and plunged into the bath, in which it must remain until the film looses its opacity and becomes quite transparent. Fresh collodionized plates must be added until, on being left five or six hours in the bath, the film is but very slightly attacked by the solution. A bath seldom gets into thorough working order until it has been used for a few days. The pictures at first are generally hard, and the semitones are not as perfect as when the bath is a little older. It is well not to try any more experiments with the bath than can be avoided. When it becomes old and insensitive, and the film produced slips about on the plate, the better plan is to reject it entirely, and convert it into a solution (with the addition of a fresh quantity of nitrate of silver) for sensitizing the positive paper. A renovated old bath will never work nearly as well as a new one, and the old solution answers very well for the purpose above-named.

The developing solution is made as follows:

Pyrogallic acid	4 grs.
Distilled water	4 ozs.
Acetic acid	1 dr.

Dissolve.

(*To be concluded in our next.*)

REVIEW.

The Photographic Album of Literature and Art.

(Houlston and Wright.)

We are informed by the prospectus on the cover of the first number, that this publication is intended to be issued monthly, and each number to contain "A Portrait or Sketch carefully executed in Photography," &c.; while previously the statement is made that the said album "is established in the hope of popularizing this noble art."

We have two exceptions to make to the above statements. In the first place we were not aware that this "noble art" was at all deficient in popularity; and secondly, we have some misgivings as to what is intended by the words "*A Portrait or Sketch.*" Judging from the specimen before us, we should be apprehensive that it is intended to apply *both* words to the same illustration, as the first number contains a portrait of H. R. Highness the Princess Royal, being a well executed photograph from a *lithograph.* This is an application of photography to which we can by no means accord our approbation, nor do we see how it is at all calculated to "popularize the art." If the promoters expect success in their enterprise, they must let the negatives of their portraits be taken from the originals; otherwise they will never be able to compete with the lithographic press.

CORRESPONDENCE.

☞ *All* EDITORIAL *Communications*, BOOKS FOR REVIEW, *&c., should be forwarded to the Editor,* GEORGE SHADBOLT, ESQ., 2, *Upper Hornsey Rise, N., Middlesex. All* ADVERTISEMENTS *and* LETTERS *on the* BUSINESS *of this* Journal *should be addressed to the* PUBLISHER, 32, *Castle Street, Liverpool.*

THE NEW DRY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

DEAR SIR,—The dry process you allude to was discovered by Mr. Fothergill. My experience of its working is such as to lead me to believe that it will supersede every other dry process known; but I have no doubt that improvements will be founded upon it, as it appears to me to involve a very important principle. Many here found it not to work, but I have made some fifty or sixty experiments with it, and with *invariable* satisfactory results. I believe, however, that, whatever the principle of action may be, it is delicate as it is sure; and therefore the plan, simple as it is, must be rigidly carried out, although, at present, I do not know how the failures *can* arise. A friend of mine, to whom I shewed the preparation of a plate, has been just as successful as myself. A few days ago I got an excellent stereoscopic negative, with figures, (a woody scene) in twenty seconds with a Millett's double combination lens and small stop. The same day I got excellent negatives (*stereoscopic*) with a Ross's simple lens in seventy seconds. I have found no loss of sensitiveness after five days' keeping. The plates readily solarize, a result of their sensitiveness, I presume. The plan is as follows:—

Coat your plate with a *sensitive* negative collodion, which has been prepared with the acids at high temperature—old collodion wont do; sensitize in a bath thirty-five grains of nitrate of silver to one ounce of water; drain for a few seconds, and wash away the free nitrate by pouring *gently* over the plate some filtered rain water, and moving it round and round the plate by the direction of the hand,—do this four or five times till all greasiness has left the surface; let your plate stand corner ways on clean blotting-paper for half a minute, and then pour on a coating of

White of eggs (fresh)	10 drachms.
Distilled water	6 drachms.
Liquid ammonia fortis	8 minims,

previously filtered and allowed to re-liquify by standing; no filtering required. Move this albumen coating round and round the plate for about a minute, and now *repeat the washing as before.* Carefully keep your plates in the dark. A 10 × 8 plate with a Ross, fifteen-inch focus lens will require, with a small half-inch diameter stop, three to four minutes; a stereoscopic Ross's lens ordinary stop, forty to ninety seconds; a Millett **double** combination lens, with a half-inch stop (excellent for landscapes with figures) will take twenty to forty-five seconds. Develope with

Pyrogallic acid............	1½ to 2 grains.
Water	1 ounce.
Acetic acid	10 minims.
Sp. Rect.	5 minims.

Being careful to add *at first* two drops to a drachm nitrate of silver solution, thirty-five grains to one ounce. Fix in the hyposulphite of soda.

Yours obediently, J. P.

HONEY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

DEAR SIR,—I was induced, by your clear instructions to "Vale Salve" on the honey process (No. 7, vol. ii.), and also from seeing Dr. Holden's (Durham) pictures by the same process, at the exhibition in the S. Kensington Museum, to try my hand at it on Easter Tuesday last, but, from some mismanagement on my part, was not so successful as I could have wished. I used Horne's *dry* collodion, and pure honey solution, as directed, and slightly acid bath, which gives clear pictures by the wet method. The plates were prepared and finished in one day. I was disappointed by their requiring so long an exposure. With a sixteen-inch view-lens, three-quarter-inch stop, in working Taupenot's process last summer, I obtained tolerable pictures with five minutes' exposure; and yet, under similar conditions with honey, the negative of the print enclosed was exposed seven minutes, and, independent of the long exposure, could not develope the honey plates clearly. A negative by collodio-albumen, when laid upon a sheet of white paper, has the deep shadows quite transparent, which, I imagine, is the correct appearance of a good negative; *but with the honey there is a deep deposit all over, and the sky being very thin prints through, it seems under exposed.* As the detail in the deep shadows is imperfectly rendered, can you suggest a remedy? It is, perhaps, a bad plan to change from one process to another. Taupenot's has produced good results in my hands; and I imagine all we read about its being complicated, troublesome, &c., is more imaginary than real; with ordinary attention the plates are easily prepared, and to me much more certain than by any other keeping process. One reason for trying honey was, I expected to obtain a film very little less sensitive than wet collodion. Can this be done? If you could give me any further hints in this direction I should feel obliged. In working with the above mentioned lens, sunlit view, most sensitive honey film, what exposure would you give? and how much more in a diffused light? Although an admirer of collodio-albumen, I do think the promoters of it very much over-rate its sensibility. I find it two or three times slower than usually stated; have also found the same with Long's process. Is the *dry* collodion suitable for the honey process? A friend sent me a sample of pyroxyline the other day for dry collodion made by Mr. Berry, of Liverpool; he says it will not take a picture by the wet method. I dissolved it in three parts of ether to one of alcohol, three grains to the ounce. A portion fell to the bottom, and on shaking up did not dissolve. The spirit was very pure, obtained from Horne's. Am I right in so doing? I would just trouble you once more on a subject which seems to present an obstacle to amateurs: it is the washing of dry collodion plates. Some recommend copious washing, others merely float the silver off the surface with the first coating of gelatine. Is the latter plan equally successful? Is evidently less troublesome. Does long washing interfere with the sensibility? It seems a disputed point, and one that ought to be set at rest. If you would kindly state your opinion on the above queries, it would be a boon to many amateur photographers, besides a

Darlington, May 7, 1858. DARLINGTONIAN.

P.S.—It is generally recommended to use very old collodion for Taupenot's process, but I find it possible to keep it till it is too old. I used some the other day a year old, very dark colour, which I partly removed by inserting a strip of zinc: but it seemed muddy, not so bright as new collodion; and when sensitized gave a dull opaque film, which seems liable to crumble off the glass when fixed and dried. Would it do to mix with new collodion?

[We think your picture has been very much *over exposed:* hence the weak sky and the fogginess of which you complain, the latter compelling you to check the development before the details in the deep shadows are sufficiently intense, and obscuring them when printed; that they are there, however, is sufficiently perceptible by examining your proof by transmitted light. If prepared as we directed with such a lens and aperture as you describe, an exposure of from two to three minutes in sunlight at the present season would be ample, while with diffused light from three to five minutes might be given. We have been working recently in this way, and not exposing for more than one-and-a-half to two minutes. We prefer more alcohol than you have used to make collodion, say five parts ether, three parts alcohol, and not less than five grains of pyroxyline to each ounce of solvent. It is very rare to find a sample of pyroxyline that does not leave some slight sediment; and we find practically, for syruped plates, that an admixture of the *stringy* kind of collodion (as opposed to the powdery), in the proportion of one of the former to two of the latter, is preferable. There is no doubt whatever about the fact that for *dried* plates *(not syruped)* you cannot wash them too carefully and completely. We think your old collodion very likely to be adapted for mixing with new for your collodio-albumen plates. Try a small portion as a sample, say with equal bulk of new. Read "J. P.'s" letter in the present number.—Ed.]

ANSWERS TO CORRESPONDENTS.

Ben. R. Mulock.—See the communication of "J. P." in the present number.

Old Bath.—Boil away your old bath in a glass or earthenware vessel until reduced to *half its present bulk*, when it will answer for exciting your albumenized paper; or else add to it thirty grains more of nitrate of silver to each ounce by measure.

J. Glover.—In our next.

L. J. Foster.—Thanks for your offer, and compliments.

Thos. Wilson and C. J.—See answer to "Darlingtonian" above.

Received.—"S. H.," "R. W. T.," "B. & R."

In type—"E. Jones," "M. Marriott."

We are compelled to leave over till next number the concluding portion of Mr. Burnett's paper.

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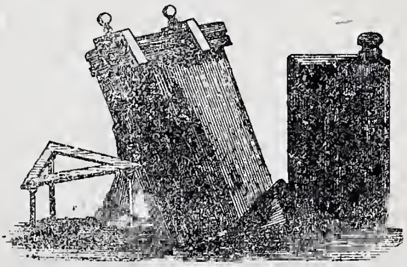

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N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."

STEREOSCOPIC MAGAZINE.

On the 1st July will be published No. 1, price 2s. 6d., of

THE STEREOSCOPIC MAGAZINE:

A GALLERY OF ENGLISH AND FOREIGN LANDSCAPE SCENERY, ARCHITECTURE, ANTIQUITIES, NATURAL HISTORY, SCULPTURE, AND PORTRAITURE;

Comprised in Illustrations for the Book Stereoscope, printed under the superintendence of James Glaisher, Esq., F.R.S., and accompanied with descriptive Letter-press by Writers of eminence in the respective departments.

Professor C. Piazzi Smyth's new work, "Teneriffe," is the first instance of photo-stereographs being made subsidiary to the illustration of books; and the effect, with its marvellous truthfulness, as compared with conventional engravings, has been so satisfactory, that it appears desirable still further to extend the principle.

It is therefore proposed to issue a magazine, in Monthly Numbers, at 2s. 6d., each containing three photo-stereographs of subjects to which it has been found that Photography can be most successfully applied. Amongst these Architecture stands pre-eminent. But Photography is equally applicable to almost all works of Art, whether in statuary, carving, or ceramic ware; and to these will be added photo-stereographs of Landscape Scenery, and of objects of Science and Natural History, which shall be at once curious and beautiful as pictures, and valuable as artistic or scientific illustrations.

The principal feature in the undertaking is, that an original article will accompany each picture. Eminent men in the several departments of Art, Science, and Literature, which it is intended to illustrate, have placed their services at the Editor's disposal, and their judgment will, in all cases, be consulted as to the selection of subjects.

Mr. Reeve invites photographers, professional or amateur, possessing any unpublished Negatives, or designing new ones, to put themselves in early communication with him.

LOVELL REEVE, 5, HENRIETTA STREET, COVENT GARDEN.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 12, Vol. II.—JUNE 15, 1858.

We promised in our last to indicate some of the proceedings of the Committee of Liverpool photographers, who have undertaken the task of experimenting upon photographic glass, and we now fulfil the same.

A sash exposed to a southern aspect has been glazed with squares of the following compositions, viz.:

No. 1.—Sheet glass, usual colour, sand, soda, lime, and small quantities of arsenic and manganese.

No. 2.—Silica 64 parts, soda 22 parts, lime 12·5 parts, manganese 1·5 parts = 100.

No. 3.—Sheet glass, extra white, pure sand, soda, lime, and a small quantity of arsenic, *no manganese.*

No. 4.—Light blue glass, sand, soda, lime, and cobalt.

Nos. 5 and 6.—Silica 63·5 parts, soda 22·5, lime 14 = 100.

As the putty covers a portion of the glass, it is proposed at the end of the season to remove the panes, when, if any change of colour has taken place, the contrast will, it is expected, be apparent. We have received from Mr. Forrest a small piece which has been treated in this manner, in which there s a very marked effect produced.

We understand that the Crystal Palace Company are contemplating something in the way of a distribution, in which photography plays an important part, upon the principle of the Art Unions; but we believe that the details are not yet quite ripe for publication. It is probably already known to our readers hat the Art Union of London has included photographic "copies of works of art" in the prizes that they purpose awarding at their next distribution. This movement we only regard as the introduction of the thin end of he wedge; for photographs are rapidly rising in character as artistic productions, even *including sentiment*, which has been intimated by some as impossible to be imported into a photographic subject, however well chosen.

We believe that all parties have agreed upon the fact that there is a point beyond which the photographer cannot pass; but the difference of opinion exists as to where the limit really is.

Of course it is manifestly clear that the mind of the artist and poet can certainly conceive that which is non-existent and not to be produced by any material combination whatver; and here the photographer must necessarily pause; but though the painter is not confined to the same precise limits, still even his hand can only faintly carry out the conceptions of his imagination, while in matters of detail the photographer has immensely the advantage.

Even as regards subjects that are dependent upon men and women only, where, in these degenerate days, can we find *perfect* models? And even if found, it is only once and again that a photographer could get a sitting from such a "*lusus naturæ.*"

The seed recently so liberally sown by Mr. Rejlander has sprung up, and is already bearing fruit. We have very recently been favoured with a sight of a composition by Mr. Henry P. Robinson, of Leamington, which not only bears the impress of sentiment in a high degree, but excites both pain and sympathy in the spectator; it is called *Fading Away*, and the following quotation from Shelley is descriptive of the subject:—

> "Must then that peerless form,
> Which love and admiration cannot view
> Without a beating heart, those azure veins,
> Which steal like streams along a field of snow,
> That lovely outline, which is fair
> As breathing marble, perish?"

A sick girl, with wan cheeks and wasted frame, supported by pillows, forms the centre of the group; over the back of the easy chair on which she reclines her sister bends, lost in a reverie of painful thought, with eyes fixed on vacancy, and heedless of the present. Opposite the daughter sits the poor mother, watching with anxious solicitude the expression of the fading girl's countenance, while just behind the centre figure the lover has turned to the open window in an attitude of grief, and gazes on the setting sun, an emblem of the waning life of the beloved object close beside him.

Our French brethren have pronounced that "sentiment is forbidden ground to photographers,"—we differ from them *in toto*.

We were also much pleased with two other enticing studies of Mr. Robinson's, viz.: *Wild Flowers*, and *Little Red Riding Hood;* the first being that of a laughing child crowned with trailing plants, the second a sober little face peeping out of the hood, with basket in hand.

We have also just seen some more of Mr. Rejlander's exquisite productions, including Shakespeare's "*Seven Ages,*" two scenes from the comedy of "Ambition," &c.

A photographic curiosity was produced on the 27th ult., by Mr. Thomas Skaife (the patentee of the spring shutters for instantaneous photography), in the shape of a pair of stereoscopic pictures of a 13-inch shell *in the act of exploding in the air*, just before reaching the target at which it had been fired from Woolwich. We intended noticing this in our last, but our article was in type before we heard of it, and it was found impossible to include it at the last moment. The stereographs include also the group of officers and gun from which the shell had been projected.

We met with a mishap the other day that has been suggested by Mr. Taylor, of Dumfries, as one of the photographic drolleries. Having visited Bushey Park in order to obtain impressions of the beautiful avenue of horse chestnut trees in bloom, we exposed a couple of plates with unusual care, and proceeded to the hotel where we purposed dining, and where, unfortunately for us, we left the plates that had been exposed, for when we came to develope them after our return home, they instantly blackened all over, and as we found they had been removed from one room to another during our absence, and no such inconvenience happened to the remaining plates, *which we had retained in our own possession*, it needed no conjurer to prove that somebody's *curiosity* had exceeded their *discretion*.

While on this subject we would just state that "we want to know" why *cameras* are excluded from Hampton Court Gardens, Greenwich Hospital, some of the parks, and many other places of public resort, except *special* permission be first obtained from some official who is not to be met with without loss of much valuable time, or perhaps even a long journey. Surely where the public are *freely* admitted in out-of-door places, there can be no reasonable objection to their *freely* using their cameras. Photographers should make a stir about this.

LONDON PHOTOGRAPHIC SOCIET

An ordinary meeting of this Society was he in the rooms in New Coventry-street, on the 1 instant; Roger Fenton, Esq., Vice-presiden, in the chair.

The minutes of the last meeting were re and confirmed.

Dr. Thomson, W. Hamilton Drake, Esq., W. Smith, George Goff, Esq., W. Warden, Es John R. Rogers, Esq., and Alfred W. Nible Esq., were ballotted for and duly elected mei bers.

The Chairman: Gentlemen,—The Secreta of this Society has received a note from M Forster, the Secretary of the Society of Ar enclosing a petition which is about to be pr sented to both Houses of Parliament from t Artistic Copyright Committee, praying for su alteration in the copyright law as shall gi protection to artists and photographers for t productions which their skill may eliminat The petition lies here for signature, and t council will receive with pleasure the signatur of members.

The Secretary then read the petiti alluded to.

Mr. Hardwich read a paper on the "*Solariz tion of Negatives.*"

This is the season of the year at which w expect to meet with that red and transpare appearance in the high lights of negative termed "solarization." There are many phot graphers who understand quite well how to de with such a condition, but others, doubtles who do not, and to such I would address m observations this evening.

I may observe then, in the first instanc that much depends upon the manufacture the collodion, and also upon the state of t bath. Pyroxyline made in acids at a hig temperature from calico or linen, is apt solarize, and especially so when the collodi has been kept for some weeks or months in t un-iodized state. Evidently there is a sma amount of organic decomposition, the effect which is not unlike that produced by gra sugar or glycyrrhizine. It is easy to obta intensity with such a collodion, even with a lo focus lens and in a bad light; but in a ve strong light there will be considerable redn of the image from over action, and this mo particularly when iodide of cadmium is used iodizing, and when the bath is nearly neutral contains acetate of silver.

Portrait lenses and stereoscopic view lense which produce a brilliant image, are alwa more liable to give excessive intensity a redness of negative than lenses of long foc and small aperture.

At certain times the solarization is mo marked than at others. With a cold easterly win and the sky cloudy, it may be altogether absen but in warm and clear weather it is at a ma mum. Certain parts of the image then sh the proper bloom and creaminess, but others a seen only as a steel blue patch, which is fl and red when looked through. Objects whi contrast strongly cannot be brought out simu taneously upon the film, and at first it ma seem that the only resource will be to give very short exposure, and to be content with shadows more or less imperfect.

Attention to the following directions will obviate solarization, but it must first be clearly ascertained that the over action of light is of the exact kind above described. For instance, there is a peculiar condition of bath in which the silver is thrown down scarcely or not at all upon the most exposed parts of the iodide; and sometimes very old samples of iodized collodion, containing much free iodine, will give a weak and metallic picture, with the lights partially reversed. Neither of these conditions can be fully remedied by the plans to be proposed. It should be a collodion which developes rapidly, and gives a fiery red picture in a strong light, in order to meet the requirements.

First. Omit the acetic acid from the developing solution, and put citric acid in its place. This will change the colour of the negative from red to blue. To each ounce of water add three quarters of a grain of citric acid, with double the quantity of pyrogallic acid, and thirty minims of alcohol, to make the solution flow upon the plate. The above formula is so well known that I am told most landscape photographers use nothing else. I do not think such to be the case; on the other hand I believe that there are many who have scarcely ever given it a trial, or if so, have afterwards laid it aside as unsatisfactory. Citric acid will not altogether supersede acetic acid in the developing solution, but it has its uses nevertheless. In very hot weather, when the image starts out quickly, it is a great advantage to be able to restrain the action by a more powerful acid, and to pour the liquid on and off leisurely, without any fear of muddy discolouration. You not only avoid stains by so doing, but also obtain greater intensity, because the silver is thrown down completely upon the image, and is not wasted by irregular precipitation. To say, however, that citric acid in the developer always produces more intensity than acetic acid, is a mistake which will be readily admitted on making the experiment in cold weather, and with a weak negative collodion. On the other hand, when citric acid is employed, other circumstances should be favourable to development, both as regards collodion, bath, light, and temperature. The acid then acts by maintaining the proper balance, the disturbance of which is one cause of solarization.

Secondly. In addition to a modification of the developing solution, or in place of it, it may sometimes be useful to add a portion of a bromide to the collodion. A friend of mine is now present who has worked in Portugal in a glaring light, and he tells me that he could do nothing without it. Mr. Fenton has used bromide in taking some of his best landscapes, and I think I am correct in saying that Mr. Frith, who made his own collodion for the Egyptian views, introduced a small portion of bromide. How then does bromide act in negative collodion? It appears to lessen the rapidity of development and to prevent reddening of the sky from over-exposure. It also diminishes the contrast between the lights and shades, and enables you to preserve the distance in landscapes. White buildings standing out against the sky will shew in the negative, and the foliage will be very distinct if the exposure has been sufficiently prolonged. These are advantages which will be appreciated, but yet all is not success in the use of bromide. There are some points which must be attended to. First, with regard to the collodion itself. We know that there are some kinds of pyroxyline made in weak acids at a low temperature, which are very sensitive but produce a silvery image, and do not give a sufficiently opaque deposit in the high lights of the negative. Such collodions are more fit for taking positives than negatives, except an organic substance, such as glycyrrhizine, be added. There are other samples of collodion again which give strong contrast, although less easily impressed by a weak light. Now it is with collodion of this latter kind that bromide may advantageously be used, and if the mistake be made of substituting the other variety, the result will probably be a leaden negative, which will occupy a quarter of an hour in developing to the proper point. I confess I have been compelled to use the bromide in all cases rather cautiously. Bromide of ammonium may be dissolved in spirit in the proportion of eight grains to the ounce, and fifteen minims, containing a quarter of a grain, added to each ounce of collodion. Even this quantity will be liable to cause a white precipitate of bromide of potassium in a collodion nearly anhydrous and containing the iodide of that metal. Since my experiments were completed an interesting paper has appeared by Mr. Heisch, on the use of bromides, but whilst I agree with him entirely in many points, I am still disposed to think that the quantity of bromide he has advised, viz., one part to three of iodide, is too large for general use. There would be a difficulty, I should fear, in many cases, in getting up the intensity, and a danger of staining the negative by a too prolonged development. With regard to securing additional sensitiveness to foliage, by the employment of bromide, I cannot speak confidently; on theoretical grounds I should have supposed the reverse, but if the presence of the bromide prevents destruction of the lighter parts by a long exposure, without interfering much with the general sensitiveness of the film, then the result must be that the collodion containing bromide will give the most perfect half-tones. This I have found to be the case, for even with a very intense kind of pyroxyline, which in collodion iodized a few days, renders dark objects very imperfectly, a little bromide will often enable you to bring out the whole picture in correct gradation, by properly timing the exposure. You use it, in fact, for the same object that sulphate of iron is employed, viz., to subdue excessive contrast and hardness of negative; but there is this difference between the two—that the iron salts as developers are best fitted for cold weather; whereas the bromide in collodion, from its retarding development, ought to be employed in hot weather.

It is quite possible that there may be some states of collodion in which the effect of bromide would be different from that above described. I have spoken of it as lessening intensity, but we know that, in presence of certain organic matters, both bromide and chloride will add to the intensity. In the Daguerreotype process, again, bromide increases the sensitiveness; but, with a pure and simple collodion, I have never found it to do so. Let the pyroxyline be made in an acid mixture not higher than 130° Fahrenheit, and, with a collodion containing iodide only, a picture will be obtained in a minimum of time. Other points besides sensitiveness, however, have to be considered in making photographic collodion; for some purposes the preparation is required to possess unusual intensity. With certain lenses the image is more vigorous than with other lenses; in a brilliant light the development is more rapid than in a dull light; when the weather is cold, there is less danger of solarization than in hot weather. To meet all these varied conditions, the photographer should be armed at every point. He ought to provide himself with two different qualities of collodion, or with one collodion which is known to change its properties by keeping after iodizing. Then there are three different developing solutions—the sulphate of iron, the pyrogallic acid with acetic acid, and the pyrogallic acid with citric acid. In addition to this, there is the solution of bromide to lessen intensity, and the solution of glycyrrhizine to increase it. If space can be found, there may be three different baths—one containing acetate, for copying in a bad light; another pure and neutral, for ordinary portrait work; and a third rather strongly acidified with acetic acid, or even with a trace of nitric acid, to be used when working with short focus lenses in bright weather. Now, I do not presume to say that none will succeed unless they furnish their operating rooms as above described; but I would put it to the opinion of this meeting, whether any photographer, who had those materials at his command, and knew how to use them, would be likely to fail in taking a good picture at any time or in any place.

Mr. Shadbolt: By way of starting a discussion upon the very interesting paper we have just heard read, and *only* for the purpose of starting a discussion (for many photographers, I am sure, have much to say upon the subject), I will first throw the ball. I confess it puts me very much in mind of the passage in *Gil Blas*, in which the so-called doctor prescribes warm water for every ailment, when we find some photographers prescribing one bath and one developer for both negatives and positives. I was rather struck with the corroboration of the truth of my own observations by Mr. Hardwich's present paper, in advocating the use of citric acid in warm weather instead of acetic acid; it precisely accords with my experience. His remarks relative to the use of bromides in collodion does not, however, quite coincide. inasmuch as I have never found that the introduction of a bromide *prevents* the reddening; on the contrary, I rather fancy it produces a slight reddening of the picture. This discrepancy however may be explained on further examination. Mr. Hardwich has referred to the paper recently read by Mr. Heisch* at the meeting of the Blackheath Photographic Society, in which he recommends the use of bromides in taking subjects with vegetation. Our Vice-president in the chair has been applying it, whether from preconceived theory or from practice only he will probably explain to us by and bye. I am aware that Mr. Frith has used it, but whether he continues to do so I do not know. There is one point to which I would venture to direct your special attention: the quantities first of all experimented upon by Mr. Heisch were in the proportions of their chemical equivalents, and he still retains the opinion that this particular proportion is the most desirable to use; but in a conversation I had some twelve months since with Mr. Glaisher, he informed me that at the Greenwich Observatery the use of bromides with artificial light is constantly employed for meteorological and other registrations, but that with the artificial light the exact chemical proportions were not found so sensitive as some others, whereas Mr. Heisch's observations apply especially to light from the sun upon vegetation. I have just been informed that Mr. Frith is in the room; probably he will be kind enough to communicate his experience.

The Chairman: I shall be very glad to hear Mr. Frith, and to welcome him back to our Society again.

Mr. Frith, after being rapturously cheered, said: Sir, I can do no other than very gratefully acknowledge the kind manner in which my name has been introduced; but I do not think I am at present prepared to lay anything before the Society. I agree very much with what Mr. Hardwich has said, and I think that the use of bromide does permit the obtaining of good half tones, and prevents solarization. There are very many conditions under which solarization takes place, and, as Mr. Hardwich has remarked, it requires a number of appliances to overcome the defect; but I am of opinion, that the correct time in the exposure of the picture is the most important. I believe, with a very good collodion film, sensitized with the iodide of cadmium, a good developing solution will produce a picture always. I found a difficulty, in Nubia and Egypt, from the heat of the climate. I found that my nitrate of silver bath was very much more active; and in some instances, when the thermometer was at 120° or 130° in my tent, an immersion of half a minute was sufficient; with a longer immersion the plate lost sensitiveness. I confess I am extremely careless, and scarcely know often what I use; at the same time, I, with ordinary materials, scarcely ever fail to produce a picture of some sort. I do not prefer to work rapidly upon a landscape, from which I may pass away for ever, but rather slowly; for if you are working with rapid collodion, half a second more or less exposure may spoil your picture. I prefer taking about forty seconds.

As regards the use of bromide, I certainly think that it does rather tend to the production of good half tones and the decrease of solarization. I was not prepared to speak to-night, but I shall be happy to give the Society, on a future occasion, the experience I have picked up in the course of my journies in the East.

Mr. Bedford: Sir, I have worked with Mr. Thomas's collodion, with Mr. Ponting's, and also with Mr. Hardwich's, and, under most circumstances, have produced satisfactory pictures. I think that the mistake into which beginners and amateurs frequently fall, is owing to the theory that the collodion being a very rapid process, they jump to the conclusion that a subject is to be shot off quickly, and they work as a rule with *too much light*. I think that however strong the light may be, if the lens is stopped down sufficiently you may produce a good picture with the lights not more solarized than if you gave half the exposure. Again, a great deal is to be done with the development. I have worked in a broiling sun at 160°, and as soon as I have poured on the developer the picture has started up very quickly; and I have preferred, under such circumstances, to flush the plate in water, stop the development entirely, and then commence afresh, when I have generally found that you can go on developing perfectly. At Coburg last year I had one subject, an interior of a quadrangle, one wall of which was painted dark yellow, and the other was white-washed; the yellow was in shadow, and the white-wash in strong sun-light—yet that made my best picture. I used a very small stop, and gave it five minutes with collodion that had been iodized about three days; that picture was perfect in its shadows and lights, and had the texture of the wall most perfectly defined. I think generally it is better to work with collodion not fresher than a fortnight; but that by studying the light and other circumstances, including the size of the aperture in the stop, you may produce a picture with almost any collodion. I cannot enter into the chemistry of the subject, because I am accustomed to work with collodion which I buy ready made.

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* Published in our last.—Ed.

Mr. Davies: I have found the addition of salt to the collodion not only increase the sensitiveness, but also the general tones of the picture, and evenness of the result; for instance, while working in strong light, the higher lights have been brought out, while the deep shadows have been very good. The chloride of ammonium may be added to the collodion itself; but, more recently, I have taken alcohol about the specific gravity of 38 or 37. I obtained a saturated solution in the first instance, and then added a small portion of it to collodion, and iodized with iodide of potassium; the result has been satisfactory, more especially when working for positive pictures in which we want to obtain the high lights in excess. I should be very glad if some gentleman would experiment in this direction, and produce here the result.

Mr. Malone: We know that for sometime out of doors bromine has been treated rather lightly; but, however, at last we may take it that it is admitted to be of advantage in photography. It has been found in the French paper process that the addition of bromide produced better half tones in the pictures. Notwithstanding this fact secures general assent, I do not think that the question of the addition of bromide is entirely settled, because we have gentlemen saying that they can produce good pictures, having good half tones, with *any* good collodion, by paying attention to the stopping down and the time of exposure—and I believe there is great truth in their observations, for it is well known that in the Daguerreotype process, where bromide is employed, that attention to the diaphragm is of the utmost consequence. If you use iodide alone, a picture is less liable to become solarized, and probably the diversity of opinion may be partly owing to that fact. I think it desirable that a set of experiments should be carried out where all the circumstances are the same, or as nearly so as possible, for, with all due respect, I think we require further information on the matter.

Mr. Shadbolt: I am rather glad to hear Mr. Malone admit a point that I think we differed about on a former occasion—that the daguerrotype plate and the collodionized glass certainly are almost identical in composition.

Mr. Malone: I do not now admit that they are identical in their mechanical composition. We know nothing of the composition of the Daguerreotype plate.

Mr. Keith assented to the truth of the statements in Mr. Hardwich's paper.

Mr. Frith: I would remark that Mr. Keith, of Liverpool, who has just spoken, is one of the best authorities we have, and his testimony on that subject must have very great weight.

The Chairman: Before conveying to Mr. Hardwich the thanks of the Society, I may be permitted to answer a question put to me by Mr. Shadbolt, as to the reason which induced me to use bromide in taking my landscape collodion pictures. I was induced to apply it by a series of experiments undertaken by Mr. Crookes, in which he obtained results from the spectrum by the use of bromine, which he could not obtain by the salts of iodine; and I think the pictures I obtained bore out the truth of the theory; however, I do not attach too much importance to this, and abstain from laying it down as a rule, because I quite agree that if you employ *any* good collodion, you can always get a good picture: it is the starting point from which you proceed. Taking a photographic picture is very much like the process you adopt in painting a picture. You take a pallete and certain well-known pigments; you mix those perfectly according to well-known rules, and probably you succeed—if you do not, you perhaps throw in a little of one colour and a little of another, or even your maul stick: and sometimes that succeeds when nothing else will. To aid experiments in photography, you succeed by altering your chemicals, but to tell *how* you do so, or what are the steps of the process you have gone through, is quite impossible for you or any philosophical chemist to state, or to what it is that you owe your success. There is no other paper before the Society; but a very ingenious stop for increasing or diminishing the aperture of lenses (which has been described in the *Journal* some time back), is upon the table, and very simple in its construction.* There are two specimens of collodion placed upon the table without any description attached to them. There is also a very ingenious portfolio by Mr. Harvey, to which I invite attention.

I may also add that a book on photography has been presented to the Society by Mr. Chas. Seeley, Editor of the *American Journal of Photography*.

The thanks of the Society were then voted to Mr. Hardwich and to Mr. Seeley.

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* This was exhibited by Mr. Noton.—Ed.

BLACKHEATH PHOTOGRAPHIC SOCIETY.

A meeting of this Society was held on Monday, May 17th, at the Golf Club House, Blackheath, the President, J. GLAISHER, F.R.S., in the chair.

After the usual business had been transacted, Mr. TRAVERS B. WIRE read a paper, entitled, "*A week with the Camera amongst the Hills of Kent*," which will appear in a future number; after which

Mr. T. SKAIFE read a paper on "*Nautical Photography*," which he illustrated by a series of stereoscopic views on paper, from negatives taken by him during the preceding six months —thereby proving that instantaneous photographs, by his process at least, could be taken in winter as well as summer. Twelve of the stereographs had been taken from passing steamers whilst going at an average speed of thirteen miles an hour, and represented scenes on the banks of the Thames, along with passing sailing craft. One ship in full sail had been taken from an open boat whilst crossing the Thames, and was witnessed by the worthy chairman and two other gentlemen who were with Mr. Skaife in the boat at the time. And, notwithstanding the boat's motion, the negative apparently had come out as sharp in detail as though it had been taken from *terra firma*. Besides shewing the *modus operandi* of the camera and patent spring shutters, by which the described stereographs had been taken, Mr. Skaife also exhibited his patent dart movement, for meteorological and entomological purposes —the action of which was shewn to be so rapid as to supersede the necessity of a camera-stand when taking a view. The instrument could be held in one hand, and manipulated with a certainty of effect as easily as a Colt's revolver, the difference being—one pourtrayed life: the other destroyed it. A microscopic negative of the sun, on a plate of Dr. Norris's dry collodion, was shewn to have been taken in the manner described.

A vote of thanks were tendered to Messrs. Wire and Skaife, for their instructive and amusing papers; and the meeting adjourned.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

The following is an abstract of the paper read by Mr. ROWLAND BOURNE, at the late meeting of the Society, and referred to in the last *Journal*:—

After dwelling on the importance of the art to the many thousands who gain an honourable livelihood by its exercise as portrait takers, Mr. Bourne shewed its use in the hands of psycologists and other medical men; of the ready means afforded by photography for the identification of criminals and dead bodies; for securing to artists rapidly fleeting expressions of the "human face divine," especially in children; for giving to the librarian a fac-simile of the title pages of books in miniature; for taking miniatures of the heavenly bodies; while to the commercial traveller, said Mr. Bourne, this art has been an immense boon. Instead of carrying large and heavy samples, a pocket stereoscope, with veracious copies of his wares, frequently answers every purpose. I submit, as an illustration of this part of my subject, some photographs of toast racks, &c., and I can, from my own experience, prove the service of photography. I also, by way of contrast, shew a lithographic copy, in which you will observe a great want of perspective, the handles all turning round in a most inartistic fashion. Besides, customers, when looking at engravings or wood-cuts, invariably allow a slight discount for beautiful lines and curves, which exist only in the imagination of the draughtsman, and not in the article itself; but, "as nature never told a lie," and never can a *photograph* of any article *carries conviction with it*. Customers, when requiring articles to match, now send (per post) a photographed copy of the goods required, and can rely on procuring exactness. When, in cases of emergency, manufactures of an elaborate description are hurried away to their destination, minute graphical detail is dispensed with by the agency of light-printing. As mementoes of manufactured articles, I submit three copies of ecclesiastical vessels, made of silver; also a monument constructed of marble and brass, all of which will well bear minute inspection with a powerful magnifier. Messrs. Padbury and Dickins, of the Sandpits, Birmingham, have kindly permitted me to illustrate my subject with the accompanying copies of art manufacture, and which, as specimens both of photography and its utility to business processes, are well worthy of close examination. Messrs. Wright, of Saltley, have lately used the art for preserving to them the form and general appearance of the magnificent railway carriage just sent off to the Pacha of Egypt. Bennett, of Exhibition fame, has also copies of the clock-works he erected at the Houses of Parliament and at Balmoral, thereby facilitating any correction when requisite. I have seen it recommended that railway accidents and battles should both be photographed; and in Austria the latter has been accomplished on more than one occasion. The way in which the progress of the bridge over the river Dneiper, at Kief, was made known to the Emperor Nicholas, was referred to; and Mr. Bourne adverted to the photographing of the steel engravings produced as illustrating the use of photography in copying rare works of art and articles of *vertu*.

Last month we gave a sketch of the discussion which followed the reading of this paper.

The first meeting of next session will be held on Tuesday, August 31st, when a paper will be read upon "*The Chemistry of Photography*," with experiments, by Harrison Branthwaite, Esq.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

THE ordinary monthly meeting of this Society was held at Edinburgh, on Tuesday, the 8th inst There was a good attendance of members. Mr HORATIO ROSS, one of the Vice-presidents of the Society, occupied the chair.

Mr. G. SINCLAIR, of George Street, read a paper detailing the conclusions of some experiments he had made respecting adhesive substances used in photography. On the firs occasion on which the subject was brough before the Society's notice there were shew two photographs, one on plain and the other o albumenized paper, both of which had been cut into five pieces, and four of each paper steeped in solutions of starch, gum, isinglass, and albumen, two pieces to each dish, and kept in this state for one month. It appeared from this that the starch and the gum were the least likely to be injurious, but the albumen proved decidedly bad. The two photographs which he then produced were cut into five pieces, the same as the first, and bits of each picture mounted with the adhesive substances already named, and kept in a damp cellar for a considerable time, the soiled and decayed state of the cardboard sufficiently indicating the severity of the treatment. The fifth piece lay on the cardboard in juxtaposition with the mounted pieces of the pictures, and shewed the original colour, from which it would be observed that the whole tone was somewhat changed, but still indicating the superiority of the starch and the gum arabic for mounting photographs. In the first experiment—that of steeping—the plain paper photograph of black colour was less changed than that on the albumenized paper; but the result was reversed in the two mounted pictures, the one on plain paper of a brown colour being more injured than the other. This might be partly accounted for by the black picture having been a stronger print. The four photographs thus tested had been well washed with warm water, otherwise they could not have withstood the treatment so well as they had done, as was well evidenced by the third picture, which, from its tone, did not appear to have got justice in the washing, and was only but a quarter of the time in the water along with the others. He preferred the starch in mounting photographs, as it could be used with greater facility and cleanliness than the gum arabic; but this was very useful for an occasional picture, when it was inconvenient to make fresh starch every time an amateur required to mount a few pictures. The gum kept perfectly fresh, and was ever ready for use if dissolved with boiling water.

The Chairman: Then, what do you think is the best medium for mounting pictures?

Mr. Sinclair: Oh! starch, decidedly.

The Chairman having then thanked Mr. Sinclair for his useful paper, addressed the members, stating that their season was drawing to a close, and he begged to express his thanks to them for doing him the honour of electing him as one of their Vice-presidents. He hoped that, in the more congenial place to which he was about going, the Highlands, he would be enabled to produce some pictures which might be deemed worthy of notice in their annual exhibition. He ventured to express a hope that all of them would endeavour during the "recess" to make a similar attempt; and not to be discouraged by seeing some work on a large scale, because the peculiar beauty of a picture did not depend upon the number of square inches of paper it covered, but upon the perfection of its execution. The subject and the site being well chosen, they might then have a ten inch picture in every respect superior to a twenty inch one, provided things were well observed, and a good lens obtained. At their exhibition he had observed that the pictures which were most admired were by no means the largest in point of acreage. At their last meeting they were enabled to give nothing like a fair report upon the merits of the two great lenses which had attracted such general notice, the Petzval and Voigtlander. He maintained that the former was a copy of the latter. Mr. Moffatt had kindly aided him in experiments he had made with these two lenses, and he placed before them pictures taken by both. They would be able, as practical photographers, to judge between the merits of the lenses. Both were so good, that he must candidly say, he had great doubts as to which was the best. He was inclined to give the preference to the Petzval, as it would take a larger picture than the Voigtlander; but, still it was neither straighter nor sharper. But he had great pleasure in bringing under their notice the result of a lens made in Edinburgh by Mr. Davidson. It was a small and very cheap lens, and he had brought with him a negative taken with it, a more perfect picture than which he had never seen. The objects even a quarter of a mile distant were brought out with great sharpness, and the focus was perfect. The negative plate on the table was nine and a-half inches square, but he thought the lens covered ten and a-half inches. As far as the lens went, he never had one equal to it. He was always glad to encourage native talent and industry, and he was therefore happy at the opportunity of directing their attention to the lens made by their townsman.

Some conversation was subsequently started by Dr. Walker as to the merits of the waxed-paper process, and

The Chairman gave it as his opinion that, unless paper was prepared in such a way as that they could get the picture developed in twenty-five minutes, or thereabouts, it was worth nothing. Any paper process which was not quick in developing was a bad process; and if the waxed-paper process took such a time as it was said it did to develope, then he did not think it an advisable one.

Dr. Walker said that the length the development necessitated was the objection he always had to urge against the process. But in warm climates plain paper would not keep as well as the waxed paper, and he thought it would be worth while to fully investigate the process.

There was no other business of interest transacted, and the meeting adjourned.

THE LONDON PHOTOGRAPHIC SOCIETY'S FIFTH ANNUAL EXHIBITION.

When the Photographic Society opened their exhibition at the commencement of the present year, we expressed pretty plainly our conviction as to the impolicy of a locality of so unpromising a nature as the Museum at South Kensington having been selected, to say nothing of the objection of dividing the interest by holding two exhibitions with scarcely an interval of time between the close of the one and the opening of another. Had we entertained any doubts about the matter, they would certainly ere this have been dissipated, for we regret to find that the public appear to be under the impression that the exhibition now open in Coventry-street is "flat, stale, and unprofitable," and this impression (though an erroneous one), we verily believe, arises in part from the somewhat astounding critique which the editor of the *Journal of the Photographic Society* has suffered to appear in the pages of that publication. From the sentiments expressed in the critique we have mentioned, we desire to record our most *cordial dissent*, considering it as we do unsound, unfair, and going out of the way to notice unfavourably *works which are not in the present exhibition*, and which, by the way, have been otherwise regarded by the majority of photographers. It professes to be the opinions of "one of the public," by which, we presume, is meant a non-photographer; and certainly, on reading it, we were impressed with a conviction that the writer could not be too well versed in our gentle art. Be this as it may, we will endeavour to give our readers a notion of it from another point of view, by one who takes a deep interest in the progress of photography, and whose opinions can neither lose nor gain anything by being sheltered under an "incognito."

The present collection consists, as we have before stated, of many new and interesting works, together with a selection from those formerly at the South Kensington exhibition, including, of course, the French collection.

We readily admit that the effect on first entering the room is disappointing, from the fact of the hanging having not been well performed, probably owing to the inexperience of those gentlemen who were charged with this invidious task, no systematic design being apparent, but a general jumble of subjects of every kind in which a frame of stereoscopic slides of a common place, not to say trivial, character holds a place in the line because it happens to "fit" well, while works of merit have met with a second or third rate place only. This has been from no kind of favouritism or selection by the hanging committee, but simply from a *want of selection*, or want of attention, and under such circumstances the *coup d'œil* is, as might be expected, unfavourable, and the general effect suffers; but when we come to examine the details we find much to repay our inspection.

There are several mongrel affairs, called photo-Flemish paintings, holding good places, which we should have rejected altogether, not deeming them fitted for photographic exhibition *at all*. We are, however, pleased to find that the productions of the mere copyists of paintings have received, as a rule, a very elevated position, not that we undervalue that application of the art, but regard it as more mechanical than in any other light; in fact, we have but little doubt that the undue prominence given in former exhibitions to these mere reproductions has been one of the chief causes why (in a recent meeting of artists and others for devising means to obtain copyright protection for works of art) photographic works were included, as it were, on sufferance, being regarded solely as copies.

We notice, first, on account of the exhibitor, no less illustrious a one than HER MAJESTY THE QUEEN, No. 331; full lengths of their Royal Highnesses the Prince and Princess Frederick William of Prussia, which, though of small size, are striking likenesses of the originals. The negative was taken by W. Bambridge.

There is also a large-sized group of the Royal Family at Osborne, by Caldesi and Montecchi, well executed and highly interesting, as displaying most vividly the domestic character. Her Majesty forms the centre of the group, holding her last-born in her lap; the Prince Consort stands opposite, leaning against a balustrade; and the young Princes and Princesses are naturally disposed around; there is, however, some appearance of "touching." By the same artists, No. 93, portraits of Mr. Rarey and Cruiser will attract notice on account of the subject, though we cannot reckon this as one of their successful results.

Nos. 97, 108, and 122 are three frames containing twelve subjects, by Alfred Rosling, chiefly from collodio-albumen negatives, *all good*, some *very* good, especially "Bitchworth Park," "The Spanish Chestnut," "A Peep at the Mole," and "A Lane near Reigate." Besides being artistic in effect, these pictures will bear close inspection, and are altogether worthy of their skilful producer.

The operators in paper negatives shew well in the present collection, both as regards waxed paper and calotype. In the former we were particularly struck with Nos. 102 and 103, "Scenes in North Wales," by J. and R. Mudd; and No. 131, "Gainsborough Lane, Ipswich," by H. and F. Leveritt, in which the ferns are particularly effective. Nos. 137, 146, and 147, by the same exhibitors, are also very meritorious productions.

Henry P. Robinson is a photographer of the school in which careful thought is of more importance than the mere production of "pretty" picture. His frame, No. 159, containing four studies of the passions, together with a portrait of the model (and what a jewel of a model she must be), displays a large amount of artistic feeling, and a pure love for art.

We are rejoiced to find that B. B. Turner has returned to his first affection for rural pieces. In the present instance he exhibits some exquisite groups of trees, from calotype negatives; amongst which we notice particularly Nos. 193, 211, and 213, not only as favourable examples of the process employed, but as agreeable and picturesque illustrations.

No. 130, "The Tot Bridge, South Devon," by W. Sherlock, is highly pleasing; as is also No. 138, by W. J. Cox, though very different from the last, being in fact nothing but some ancient houses of rough stone on the Quay in Sutton Pool, Plymouth; but the play of light and shade is very fine, and as a brother operator, Mr. F. Bedford, remarked, on our drawing his attention to the beauty of the effect, "the sun seems to be kissing the edges of the stone." No. 139, by the same artist, though well executed, is quite in a different style, and though containing far more "incident," is not to be compared to the former.

Amongst the new works, Nos. 153 and 157, "The Linn of Quoich," and "Mill in Castletown, Braemar," are perhaps the gems as regards landscapes; they are as nearly faultless as possible; and whether we regard the selection of the subjects, the execution of the negatives, or the printing of the positives, they deserve to rank as models for imitation. They are by G. W. Wilson, of Aberdeen; as also three instantaneous pictures, Nos. 154, 155, 156, which are equally worthy of attention. We have recently had the pleasure of inspecting several other works by this gentleman, all equally fine.

The Rev. W. Ellis (there is an error in the name as printed in the catalogue,) has produced some very interesting results, both as regards ethnology and botany. No. 445, "Natives of Madagascar," the one a princess, the other a woman of the common order, as also No. 232, a very intelligent looking male representative, may be cited as belonging to the first category; while Nos. 231 and 235 give an admirable idea of the peculiar aspect of the vegetation in the locality specified.

Hennah and Kent, of Brighton, exhibit two frames of their carefully, neat, and compact productions—No. 140, "Animals from the life;" and 175, "Officers of the 1st Dragoon Guards." We rejoice to find that these gentlemen take a pride in abstaining from extraneous aid, a virtue extremely rare amongst professional photographers.

Buss shews two well executed subjects, Nos. 178 and 179, each containing the contrasted portraits of Dutch girls, in their holiday attire and in their ordinary costume. Though good, as photographs, they do not possess the humour displayed in Rejlander's well known "Joe and Jane on Sunday," and "Joe and Jane on Monday."

There are several proofs from albumen negatives, by the late H. Johnson, that will repay examination, particularly Nos. 417, 418, and 420.

As curiosities we would direct attention to Mr. Pouncey's specimens of photographic printing in carbon—Nos. 384 to 388, which are the same as were exhibited some short time ago at one of the ordinary meetings of the Society.

Truth compels us to add that which we are very unwilling to admit, viz., that we do not think this process promises well at all, as there is literally *no half tone*, except in the copies of engravings, and in them the half tones are produced solely by the *increased tenuity of the lines composing it*, consequently there is nothing of what photographers know as middle tints, that is, a lighter shade produced by a thinner film of the colorific deposit.

Many of the coloured portraits shew a considerable amount of "artistic" merit, but as we regard them as "illegitimate" in a *photographic* exhibition, we pass them by in silence.

No. 457, by Samuel A. Walker, is a good example of portraiture. We have omitted in the above all mention of Fenton's, Bedford's, and Lyndon Smith's beautiful and numerous productions, as well as those of Cundall, Howlett, Dolamore, Bullock, and others, having already noticed them when at South Kensington, but they do not please any the less for their new quarters. The collection of the French Society contains nothing new, but is now separated from the English pictures, and occupies the two upper rooms.

We think we have shewn satisfactorily that the collection now at New Coventry Street will well repay a visit of inspection.

ON THE PRODUCTION OF DIRECT POSITIVES—ON PRINTING BY THE SALTS OF THE URANIC AND FERRIC OXIDES, WITH OBSERVATIONS CLIMETIC AND CHEMICAL.

By C. J. Burnett.

(Continued from page 129.)

I have every intention of prosecuting further my experiments on the producing developable images by different parts of the spectrum, natural and artificial, both on papers as we get them, and as prepared with substances which appear to us to be "chemically" unchangeable by light, and consider the subject deserving of a thorough examination, even putting practically useful photographic results out of the question, but the substances with which I have been most successful in sensitizing paper have been certainly such as (with the exception to a certain extent, of some experiments with the salts of the lower and unreducible (?) oxides which I mean to repeat carefully as soon as the weather and my health permit,) were apparently, susceptible of "chemical" (as the word is ordinarily understood) change by the action of light, though it might be doubtful from the short time required for the exposure where we intended developing with silver (or even gold) in comparison with that requisite where we intend using other developers, as the ferrid-cyanides, and still more the ferrocyanides, in the case of the uranic salt, how far the actual chemical change *i.e.* the reduction from a^2 0^3 to protoxide in the case of the salts named, must be supposed to have been effected in each case. What are the number and orders of changes effected? Is there an allotropization or actinic assimilation by the sesqui-oxide salts without reduction in the first instance in any case? Or have we reduction first, and allotropization of the protoxide as an after stage?[*] Is it possible that intermediate reductions to the intermediate non-basic oxides have in any case any connexion with the phenomena? These are only two or three of many questions which must be answered, and which I have noted down to be asked by me of nature, with regard to this particular matter of the sesqui-salt developments. It may interest you to know that a solution of the brown oxide of manganese in bitartrate, (or Binoxalate?) of ammonia gives a highly sensitive paper, developable by silver, and probably gold, solutions, and in other ways. Also, that a similar solution of cupric oxide appears to be slightly sensitive,[†] and that some of the ammonia-cobalt bases appear to be pretty sensitive: that I have got a pretty sensitive paper by preparation with the exceedingly beautiful solution obtained by first acting on hydrated oxide of cobalt by bitartrate of ammonia, and then dissolving the small purple-crimson crystals which are formed in liquid ammonia and water. This paper is developable by silver salts, and also sufficiently distinctly by the prussiates of potash, probably by other salts also. A solution of nitrate of esqui-oxide of cerium also gives a paper rapidly bleached by sunlight. I have got some tolerably successful results very long ago with tungstic and molybdic and stannic solutions, but have now mislaid the particulars of the preparations which succeeded best. As to the chromic papers, there, as elsewhere, the exact nature of the change seems very doubtful. How far it depends on allotropism (or definite actinism-assimilation?) How far on reduction of acid. In some cases it would look as if a chromate of an inferior oxide of chrome were produced.[‡]

Though perhaps a little out of place in a periodical exclusively devoted to Photography,

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[*] This, though apparently probable in some of my experiments, I should on the whole, doubt As to remarks further back on the development of papers prepared with *mixtures* of uran*ic* or ferr*ic* with ferr*ous* salts, though I considered it well to put the argument and question in the strong way I did, I must still admit that the increased intensity of a picture, without injury to the lights of it, obtained by the development of papers which have had this mixture of ferrous salt introduced in their preparation, is mainly like the advantage of a ferrous salt when used in one developer, to be considered as an exemplification of the old axiom, that "If equals be added to unequals, the sums produced by the addition exhibit the exact inequality of the original unequals." Still, in some of the experiments there remain facts which yet require examination; whether to be accounted for altogether by the ordinary looser absorptive power, common more or less apparently to all bodies, exercised by the water or "chemicals" in the case of solutions, or of the paper "chemicals" or air in the case of the sensitized papers, or by a proper assimilation, an action more or less related to such by any of them, remains the question. The possible allotropization of the oxygen in the uranic or ferric salts? (or the iodine iodides?) &c., must be considered, and the possible production of ozone must not be overlooked.

[†] The retentive action of the bitartrate of ammonia or potash must be eliminated in these cases.

[‡] I may as well state here, that further experiments with paper prepared with bichromate of copper *pure* in cuprotype rather seem to indicate, that it is not superior to, but inferior to that prepared with the mixed salts, contrary to my expectations when I suggested it in preference; the defect I have found has been in the final colour of the resulting toned prints, the two colours separating to a certain extent The preparation with ammonia-bichromate alone, adding copper afterwards, seems also to work well. I am very anxious to get hold of the mellonide of potassium, and will have much pleasure in giving any man 20s. for an ounce of it, as I have no convenience for making it We ought to get a good green for foliage, &c, from a chromate of copper print, toned by mellonide of potassium; and the same salt from the unchangeableness of the mellonides should be useful in toning the red cuprotype.

I may mention that I have been long devoting a good deal of consideration to mutual actions of "light" (signifying the solar and allied ray powers) and material bodies, both of the bodies in modifying and altering "light," and of the "light" in modifying the properties of bodies, not only by chemical decomposition (or change in the arrangement of the atoms at chemical distances ?) but in the changes of another nature either by permanent ozonoidal allotropization or by absorptions in a looser manner, so as to be more readily given off again by contact, or radiation, just as in the experiments of M. Moser, Mr. Hunt, and M. Knorr, or the scotographic results which I have obtained in the case of previously solarised objects placed in contact with silver, uranic, or ferric papers in the dark.

There is every probability that all of these actions exercise, (some of them I have long been convinced do exercise,) all-important influences on climatic phenomena. Not to enlarge too far here; who can doubt but what the immense difference sensible to all of us,* and utterly unaccountable for in any adequate degree, by thermometric and hygrometric differences between our north-easterly and south-easterly breezes in spring, is owing to the one coming to us fully charged with sun-influences absorbed by it in passing over regions bathed in unclouded sunshine, for, at all events, a considerable part of the day, while the other comes to us from regions which are either shrouded in polar darkness, or over which chaos-like fogs obscuring the sun, are almost continually brooding. As to the north-easters', I believe that absorption or emission of ray-powers or wave-powers capable of exercising an influence on animal life, is intimately involved with processes of freezing, thawing, liquifaction, and crystallization, and that this also may come here unfavourably into play, so as to increase the ungeniality of the breezes from the Gulf of Finland and other thawing regions.

The sunlight of certain regions is also itself doubtless much modified by the state of the atmosphere, as to quantity and state of vapours contained in it, as well as, probably, by temperature, and there can be no doubt that the nature of the light reflected by the ground, and which acts again on the air, and its constituents, probably both by the more permanent allotropization proper of various sorts, and by looser absorption, such as we have spoken of, varies much, both according to colour and to other peculiarities, not visible to our eye, of the soil, rocks, sand, water, grass, &c., from which it is reflected. The radiation at night, particularly of absorbed and altered rays is a most important consideration. This even without calling in lunar, planetary and astral influences of the powerful action of some of which at all events, there can be no rational doubt, may have much connexion with the danger of exposure to nocturnal air, observed more or less in many countries, and particularly remarkable in most instances just after or about sunset.

Considerations connected with the ray-powers will also help us, either to an entire and complete new theory of miasms, or to account for miasmatic phenomena which cannot be accounted for by the present theory.

The supposition of some peculiar modification of the properties of the sun's ray-powers exexercised by peculiar soils would account, without supposing anything in the least degree strainedly improbable, for the as yet, I believe, almost unattempted to be accounted for pestilential character of certain barren localities in the tropics, as about the Cape de Verde and some parts of the Azores, and even elsewhere, where there is no such *peculiar* excess of the decaying vegetation as was formerly considered necessary to the production of miasm.* The altered ray-powers might be supposed to act directly by radiation on the human body by communication externally to the skin, or internally by the lungs to the blood; or the altered (or unaltered) ray-powers in this and similar cases might be considered either to be simply absorbed by the atmosphere, or to have determined, by their proper virtue, the formation of some chemical combination of peculiarly venomous properties, from among the many elements existing in the atmosphere; or else to have allotropised into a state of poisonous activity some of the simple or compound gases or vapours which the atmosphere, ordinarily, or exceptionally, or locally (or both of these two latter), contains. It is even quite possible that the ray-powers may act in one of the ways in one case, and in another in others. The well-known phenomena of sun-strokes are arguments for direct action on the body, as shewing the powerful effects of even ray-powers, which have not been altered (by earth-reflection, at all events, if they have by transmission).†

For the second supposition or for the third, the fearful activity, as poisons of the alkaloids produced in vegetable organisms by the action of light from the most inert elements, is a strong argument. The non-production of some of these alkaloids in certain cases, where the plant otherwise thrives well, is remarkable as being apparently connected with peculiar "light"-climates. In this neighbourhood, for instance, at least one of the ordinarily most virulent umbelliferæ is comparatively harmless,‡ and among the Fungi, &c., allied differences are well ascertained. As for the third supposition, the differences between ordinary oxygen and ozone are sufficiently marked towards the human system. And how do we know that even oxygen may not be allotropizable into many different modifications by different parts of the transmitted or reflection-modified spectrum.

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* And not unobserved by the photographer. A stratum of air undersaturated with actinism may be supposed to absorb much of what ought to reach us.

* The so often observed very general connexion of insalubrity with volcanic districts may be also attributed, either to the existence of local radiations connected with central heat or chemical changes, or to some peculiar modifying action exercised on the solar or other ordinary ray-powers connected with the peculiar constitution of the volcanic rocks or soils, or to some peculiar action of them on the constituents of the atmosphere chemico-motive or allotropo-motive, or the one through the other. Some observations by Humboldt also point to such actions connected with dark-coloured rocks in America and Africa.

† The effect of moon-rays in the lower latitudes are well established—1st, on men sleeping exposed to them; 2nd, on dead fish; 3rd, on men or animals eating these fish; 4th, on vegetation; and we need not say that these effects are not owing to any of the powers known as heat-"light" or (photographic) actinism.

‡ Interesting in connexion with the old superstition (?) about the gathering of certain herbs by moonlight.

Besides this, there are nitrogen, carbonic acid, ammonia, watery vapour, and many other compounds in minute quantities everywhere locally existing in the atmosphere; who can tell into what states of venemous activity any one of these, the most ordinarily inert, may not occasionally be allotropizable ?*

I must, in such a place, not enlarge too much on this, to me, most tempting theme, but will observe that I suspect the old sun-worshippers and astrologers had a vast deal more of truth at the root of their beliefs than we are wont to imagine.

The ray-powers are, I cannot doubt, nearer to the soul of nature, and more intimately connected with the mysteries of life,† than any influence of which we have yet distinct cognizance. As to electricity, &c., I do not mean to prejudge what essential or anastomosing connexions there may be, or may be not, yet discoverable as we approach the sources of things; but the marvellous change in the properties of bodies, effected by "light" in the case of the four "ozone" productions, and in other cases already observed—and we are probably on the verge of finding out an infinite number of such modifications of perhaps all bodies simple and compound producible by the ray-powers, different modifications of the one body being, in all likelihood, producible by different ray-powers (having different undulative forms or velocities?)—does seem to indicate a path which may lead us to much nearer the source of all differences in matter than that which the discoveries of Volta and Galvani first opened up.

Through the careful study of the wave-powers,‡ rather than of any other class of influences with which we have been as yet brought into *conscious* rapport, lies the path which is likely to lead us to a point whence we may obtain some glimpse into these two great mysteries of nature, the great mystery of matter, and the still greater mystery which links matter to life, and though we should never be able to realise the dream of the alchemist by laying violent hands on, and appropriating to our uses, the stone which turns all into gold, nor to quaff ourselves into immortality by drinking of the elixir of life, still our search after truth need be no fruitless one. Even the telescopic view and azimuth bearings of the Great Unreachable may be to us far from useless in our survey of Κοσμος, and as little barren in suggestions of practical* value as is to the mariner out at sea, the view of some far inland mountain-peak, or yet farther star-world, to which ship that was built could never carry him.

ERRATA IN MR. BURNETT'S PAPER.

Page 127. 9 lines from top of second column, for *as indicated by* read *as indicated, or by.*
" 25 lines from top of first column, for *highly sensitive* read *sensitive, though not highly sensitive.*
" 32 lines from top of second column, for *apart from* read *in part from.*
" 36 lines from top of second column, for *my proportionate* read *the proportionate.*
" In the note at bottom of the second column, for *crystallising* read *dissolving.*
Page 128. 10 lines from bottom of second column, after *photographers might* read *even on this account alone.*
" 2 lines from bottom of note at second column, for *the oxymel* read *in the.*
Page 129. At top line of first column, for *uranic and other* read *uranic and ferric.*
" Second line from top of first column, for *photographic* read *photolithographic.*

The note which appeared in the second column of page 128, with the exception of the first line, should have been placed at the bottom of the first column of page 129, with an asterisk prefixed as reference to another which should have been placed at the word albumen in the second line from the top of the column, and at the end of it should appear a reference to "*Photographic Notes*, Oct. 15, 1857, page 383."

N.B.—Though we have spoken of the trials of uranic salts and gallic acid in combination, we have yet, in spite of so far successful experiments, our doubts about their compatibility.

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

MR. FOTHERGILL'S DRY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I should be glad if you, or some of your readers who have tried the preservative process by means of simple albumen, given in the number for May 1st, would give me the result of their experiments.

I found that the plates lose much of their sensitiveness—requiring an exposure of *ten minutes!* when the wet collodion only took one minute, and the resulting negatives were very deficient in density, a fault which, with the collodion I use, I have not been troubled before. I am, Sir, yours, &c.

Linacre, near Liverpool, BEN. R. MULOCK.
May 19th, 1858.

The Photographer's Pharmacœpia.

MANUFACTURE OF GUN COTTON.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As the recipes for making gun cotton given in your number of the 1st April are not very practical, you will perhaps allow me space to describe a method suited to the amateur, which in my hands invariably gives a pyroxyline of excellent quality, very soluble, non-contractile, adhering well to the plates, and free from reticulation.

Place four ounces of finely powdered nitre in a porcelain mortar, and heat it in an oven until it reaches a temperature of about 100 to 110 degrees Fahrenheit, or a little over blood heat, but not so hot as to be uncomfortable to the hand; then take it into a yard or open space. Have ready two glass rods, or slips of strong window glass; also two large pans full of water, and a stick.

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* Does any peculiarly venomous allotropic condition of any one of the simple elements (or binary compounds) run through and produce the peculiar narcotic properties, or other properties of the medically similar compounds often so strangely found associated together in one plant: and is it not possible that some peculiar form of one of the so called simple elements may account for the remarkable virulence of cyanogen and its compounds, as contrasted with mellon paracyanogen, &c., and the protein compounds? May we not suspect some allotropic modification of the nitrogen being at the bottom of much of this, as well as many other eccentricities, explosive, &c., of the said "element's" compounds?

† I believe that actino-biology would afford much better foundation for building up a science than does electro-biology. But of this elsewhere. I find in Reichenbach's book that he has to a certain extent observed the connexion; but the ground on which he has built his Odyl theory seems by far too limited. With the highest appreciation of the laborious manner in which the foundation, as far as it goes, has been secured, and of the ingenuity and beauty of the superstructure, I cannot help thinking that, had the architect taken the trouble, in the first instance, to ascertain whether there were not a little more ground in the vicinity which might be taken in and made available, the building might have been considerably different from what it now is. So much for Odyl.

‡ Including the solar ray-powers, and their lunar, planetary, terrestial, and astral cousins, with all their modifications; also the "chemically"-moved and vitally-moved, or produced, forces, and the crystalline force, both the old stationary "crystalline force," and the force disengaged or absorbed during crytallization or liquefaction, bearing the same relation to the other as *nomadic galvanic electricity* bears to stationary *domiciled magnetism*, also the many other related forces which no doubt remain to be, and are capable of being, extricated by diligent experimental research.

* I have several on the stocks.

Add to the nitre one and a-half drachms of water and four and a-half ounces, by measure, of the sulphuric acid of commerce; this, if obtained from a respectable source, has a pretty constant specific gravity of about 1·845.

Stir the mixture well up with the glass rods, and immerse tufts of good clean cotton wool, taking care they are thoroughly saturated, until there is very little superfluous liquid, but do not add so much as to absorb quite all the moisture. Knead the mass well with the glass rods for a few minutes, turning it over repeatedly. The time is of little consequence after the cotton is well wetted, but I generally let it remain about seven or ten minutes. Then take a portion of the cotton out, by means of the glass rods; throw it into one of the pans of water, and instantly agitate it well with the stick for about twenty seconds; then transfer it to the second pan of clean water, and so with the different portions in succession; and then wash them well in several changes of water, taking great care that no lumps remain in the cotton. The last washing should be in hot water.

It must be borne in mind, that the moment when the cotton is immersed in the first water is the most critical time; if the mass be large, and the acid be not instantly diffused through a large body of water, the temperature rises so rapidly that the cotton becomes disintegrated. After thorough washing it should be wrung in a cloth, the tufts picked to pieces, and spread out to dry, which it will do in the course of a night, without artificial heat.

I never weigh the cotton beforehand, but I find, on weighing it after it is finished, it generally slightly exceeds one-eighth of the weight of the nitre employed. The last I made, using the above quantities, weighed 250 grains.

I do not recommend amateurs to try to use the mixed acids. They require very careful experiments to establish practically the working of different samples of acids; and, to procure a good result, the acids ought to be heated to a temperature of 140° Fah., a matter of considerable trouble and annoyance to those who have not the use of a chemist's laboratory.—I remain, Sir, yours most sincerely,

Montpelier Square, MONTAGUE MARRIOTT.
24th May, 1858.

REVERSED ACTION OF LIGHT.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I forward you the enclosed prints, as each have the peculiar appearance on the trees noticed by some of your correspondents. The snow picture is one of a dozen negatives taken on the same day, and one of two having the lights and shades thus reversed, the other being nearly all reversed, and was a tolerably good transparent positive. The other print enclosed was recently taken; and, finding some of the branches of the trees were edged with white, and some entirely white, and even, as you observe, in some cases the whole of the tree, I thought I saw some resemblance to the snow pictures, and, upon inspection, I found that the trees here, as well, had the same white edges. Both negatives were taken in strong sun-light, but the sun only illuminating the upper portion of the view. In the last picture the sun shone only on the trees; and I made one or two trials to bring out the garden and objects, but failed, until the plate was exposed for more than a minute, with wet collodion; the result being, as you see, the lower part of the picture, being in the shade, exposed about the right time, or rather under, but the upper portion, upon which the sun shone, over-done, until the reverse action has taken place—first, the edges of the branches, the whole branch, and lastly the entire tree; the sky correspondingly dark. In the snow picture the clouds partake of the same change, and what should be a bright sky looks ominous of a thunder storm. And, as will be seen in the pictures, as the trees get lighter the sky becomes darker, rendering the contrast the greater. Did the sky not partake of this change, it could not be so easily detected in the trees. The upper branches of a tree are frequently lost in a bright sky, in otherwise perfect pictures, through being out of focus, the rays of the tree and sky intermingling in confusion, and the stronger predominating; but there is here no tendency to reverse action.

I likewise enclose you a part of a positive collodion picture, with the shirt-front fringed with white over the black waistcoat, which appearance, I take for granted, is the "halo of fainter light" noticed by Mr. O. G. Rejlander. Some of my best proofs were thus spoiled by it. I found it to be the result of a peculiarity in the collodion. Whatevor part of the plate the iron developer was poured on, or however gently and diffused, the whites would be nearly washed off. To avoid this a dish was used, and then, with the greatest care, the whites would float over at times to the neighbouring shadows, as in the specimens sent. With another collodion, *and the same developer*, there was not the slightest tendency to this annoyance. A weaker developer, with a more gradual reduction of the silver, might have remedied the evil; but, not having much time for experiments, I abandoned with regret an otherwise good collodion for middle tints, for another, and have thus been quite freed from this vexation.—Yours truly,

E. JONES.

[We omit your concluding remarks on the stereoscopic angle (which has been frequently discussed) for want of room.—Ed.]

MR. GLOVER'S PRESERVATIVE PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I notice your views on my modified dry process as promulgated in the last impression of the *Journal*, but having worked so successfully with the preparation, combined with the testimony of others who have used it, I am anxious that photographers should not be unduly biased by your remarks, but follow the advice of one of our advertising contemporaries, "try it and be convinced."

Doctors disagree and are sometimes mistaken. Astronomers for ages were wrapt up in a system which to us would seem the autipodes of common sense, yet, with truth staring them in the face, how tenaciously they held on to the views of their ancestors. Philosophers frequently overlook much that is valuable, simply because it does not coincide with already established theories.

In my hasty description of the process I had neither time nor space to particularise; but for the benefit of those who are now martyrs to stains, blisters, and other irregularities in unsatisfactory dry processes, I beg to offer the following remarks.

However complicated at first sight the process appears, it is in reality most simple and easily managed. In comparison with collodio-albumen it takes about one half the time and attention to prepare the plates, and as regards the after process all I can say is, the fates preserve me from one that requires a two to four hours gallic acid development, with its prolonged suspense, doubly enhancing our disappointment in failure. It is a well known fact, (I might almost say too well known by photographers,) that gelatine in contact with water must expand. If this substance can be kept on the surface of the collodion, so as to be almost wholly dissolved and dissipated prior to development, all well and good, the process succeeds; but if (as is most generally the case, and to which I endeavour to arrive), the gelatine is absorbed into the pores, becoming part and parcel of the collodion film, however firm its structure, it will not, under all circumstances, possess sufficient tenacity to resist the expansion; blistering is the consequence. Has it ever occurred to you, sir, that by combining another substance with the gelatine, this anti-photographic property could be restrained, if not destroyed. Whether it is contrary to *theory* or not it matters little, as I am guided by results; but I find that the useless gum which you condemn is, to employ sporting phraseology, "just the cheese." Please to try it once more before discarding it from your photographic laboratory.

The next point I have to defend is the use of honey with the gelatine. I employ it not so much for a preservative as a sensitive agent, while to its presence I assign the easy development. Let a practical illustration suffice. On one of my late photographic excursions I met a gentleman who was using Dr. Norris's plates, giving five minutes exposure, while mine, under precisely the same circumstances, only required two. I enclose a print, evidencing as to whether it was sufficient. There now only remains the citric acid. I can do without it I confess; but under such circumstances have produced stains; with it, however long the development takes, the shadows remain clear and transparent.

I am, dear Sir, yours truly,
26, *Hanover Street, Liverpool,* JOHN GLOVER.
May 26th, 1858.

[The stereograph with which Mr. Glover has accompanied his paper is sharp, clean, and perfectly impressed in both shadows and foliage, though printed somewhat too darkly.—Ed.]

ANSWERS TO CORRESPONDENTS.

A Young Beginner will find—1stly, a good formula for positives on glass in our number for 15th March last, at pages 76 and 77; and 2ndly, for a dry process in that of 15th January, 1857. 3rdly. The same solutions will work for the dry processes as for the wet *negative* process.

Old Bath.—Add to each ounce of your old thirty-grain bath another thirty grains of nitrate of silver, or boil it down in an earthenware or glass vessel to *half its present bulk*, when it will be available for exciting paper for printing.

R. S. D.—We have not had any experience of the turpentine waxed-paper process of the Rev. Mr. Sisson. We have, however, just received the pamphlet for review in our next. The time that sensitized waxed paper will "keep" depends upon the amount of washing that it receives—the more it is washed the longer it will keep, but the longer is the necessary exposure in the camera. Rinsed well in one bath of water it will keep for two or three days in moderately warm weather, but if it be soaked in a second water bath it will generally keep good for a month. We prefer simplicity in all processes. Read Mr. Dutton's paper in our number for 15th April, as also Mr. Heish's in our last. Cloth suitable for a portable camera may be purchased at most of the warehouses for waterproofed articles. The American *leather cloth* also answers well.

R. Jackson.—We don't know the collodion named.

P. P. S.—Run it through blotting-paper.

We are reluctantly compelled to omit the concluding portion of Mr. Judge's paper in this number, but hope to be able to give it in our next.

W. Ross, Alpha, and W. K.—Your communications are in type, and shall appear in our next number.

Received—"Manual of Photographic Manipulation," by Lake Price. Review in our next.

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PHOTOGRAPHY.

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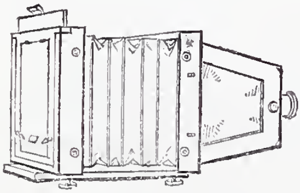

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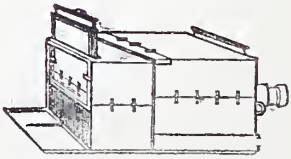

Capt. Fowke's
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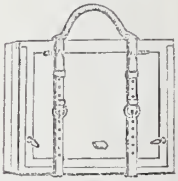


T. OTTEWILL and Co. beg to inform the Trade and Public generally, that having made for the Government departments Capt. Fowke's Cameras with Teak, and having also made several improvements in the construction of the same, they can highly recommend them as being the most portable as well as the lightest cameras in use; the 10×8, with single back, inner frames, focussing screen, &c. is in the small compass, when closed, of 12¾ inches × 10½ × 3½, outside measurement.

T. OTTEWILL & Co.'s new STEREOSCOPIC BOX CAMERA has given general satisfaction, and they have already been favoured with very great patronage for it; the box contains camera and lens six backs and focussing screen, tripod head and board; the board is so arranged that any angle can be obtained. The box is 13½ inches long by 7 inches wide and 5 inches deep, outside measurement.

Their DARK BOX also continues to receive public favour for transferring prepared plates from the box to the camera in sunshine, without injury.

Their REGISTERED DOUBLE-BODIED FOLDING CAMERA continues to give, as it always has given, the greatest satisfaction, for its simplicity and portability.

ILLUSTRATED PRICED CATALOGUE sent free on application. Manufactory, Charlotte Terrace' Islington, London.

The

Liverpool & Manchester Photographic Journal.

NEW SERIES. No. 13, VOL. II.—JULY 1, 1858.

HOT water is a very good thing in its way, but a tub of it is not exactly the locality we should select in preference as a place of repose, particularly with the thermometer hard upon ninety degrees in the shade—yet figuratively that is just the way we are situated at present.

We have recently perused an article in the *Art Review and Photographic Record*, published in Edinburgh, on the 31st May, in which we have come in for far more than our share of unfavourable remarks, coupled with unwarranted imputations, and without even the usual courtesy of avoiding the repeated use of our name when alluding to us in our editorial capacity. There is perhaps nothing better calculated to take the vanity out of a man than his seeing himself as he is seen by others, and although we had hoped to have been estimated at something higher than a "*stoker*," such is the epithet we have to accept.

All that we have done to draw down this outpouring of wrath is contained, so far as we can make out, in the following extract from our leader of 15th April last, which is quoted in the article complained of, viz.—

"We notice the announcement of a new Scotch periodical, to be called the *Art Review and Photographic Record*, in which, as its name imports, photography is to find a place; but we have little faith in these mixed interests—a house divided against itself cannot stand."

We are told that we are not to be held responsible for the paragraph if we disclaim it—*but we do not disclaim it*, and maintain that we were perfectly justified by previous experience in expressing the opinion we did. Every work professing to unite photography and art that had been issued up to the time when we wrote, consisted of *photographic copies* of so-called works of art, many not deserving of repetition at all, and *none* being photographic works in the true sense of the expression.

We must not, however, trouble our readers with our own personal grievances, as, if there are any who feel an interest in the matter, they will probably read the article in the *Art Review* for themselves, where they can discover the frailty of the broken reed upon which they have been leaning—though they may possibly object that had the writer taken the trouble to examine the doctrines concerning even the artistic relations of photography that we have always advocated—the mental element being that most esteemed by us—we should have escaped the condemnation which he there pronounces.

Passing by such phrases as "inexcusable ignorance," "own wisdom," "blind guide," and others of a like complimentary nature, we will make a few more remarks that we deem necessary, as well on account of our readers as on our own, and will then drop the subject.

The "frequent announcement" of our name as editor of these pages is objected to as savouring of vanity on our part. By the "frequent announcement" we presume is meant the fact that our name appears on the front of every number of this *Journal* as responsible for its contents, if not we are at a loss to understand the objection; but however it may be, the matter is one with which we have nothing to do, as we neither suggested or dictated either publication or concealment, but when consulted upon the question left it entirely at the option of the proprietor to act exactly as he thought best for his own interests.

Having already shewn that the opinions we have published relative to the art-portion of photography do not differ so widely from those of our censor as he would have us imagine, possibly because he scorns the co-operation of "such a guide to the mere men of chemicals and processes, and baths, and manipulations," let us explain why we devote so much of our attention to what he regards of but little importance—it is not only because hundreds of our readers require it of us, and because we are naturally allured by the scientific phase of this art-science to which our previous studies drew us instinctively as it were, and in which we fancy, possibly erroneously, that we may do some service; but because without this attention from some of its votaries, through good report and through evil report, photography *could not have existed at all*, and would even now fall short of the future excellence to which we believe it to be destined.

Oh! that photographers would lay aside their jealousies and work harmoniously together, each in the sphere to which his acquirements are best adapted: we should not then "have the eye saying to the hand, I have no need of thee, nor again the head to the feet, I have no need of you," neither would any of the members repudiate their connexion with the body, but every one would strive earnestly to further their mutual interest to the utmost of their ability, knowing well "that when one member suffers all the members suffer with it."

Let us now turn to more profitable considerations. Mr. Warren de la Rue has been pushing his experiments in astronomical photography: not content with "making game" of the moon, he has bagged Jupiter, Saturn, and the double star Alpha geminorum as well, and at the same time compared the actinic with the illuminating forces of each.

We cannot forbear a growl at finding the detestable word PHOTOGRAM made use of several times in the report of the Astronomical Society. We have a suspicion as to the writer, and will certainly try our influence in endeavouring to procure the avoidance of such a hideous appellation in future. There is no excuse for the attempted displacement of "photograph"—telegram may have been a disagreeable necessity, but not so "photogram." Besides consider the inconvenience; even our dear friend *Punch* will have to alter his orthography, and instead of "foter-gruffs," call them "foter-grims."

We perceive by our contemporary, *La Lumière*, that M. Handoy, of Lille, has discovered a most useful modification of the uranium printing process of M. Nièpce de St. Victor, by the addition of a bath of protosulphate of iron; and it is much to be regretted that our contributor, Mr. Burnett, was so *unkind as not only to have discovered it before*, but also to have made it public some twelve months ago, so that it almost looks as if M. Handoy had copied from him.

We have recently seen a very capital photograph of "Beadsman," the winner of the Derby, by Lake Price, which is one of the best of this class of subjects that we have had an opportunity of inspecting. The glossy coat of the race-horse, the natural attitude of the grooms, and the thatched stable in the background are not only all well contrasted, but in perfect "keeping."

We have much pleasure in again alluding in terms of commendation to a new production by Mr. Henry P. Robinson, of Leamington, which he has called "I know." There are two young girls threading the mazes of a woodland pathway, the countenance of the elder one bearing the unmistakeable, troubled expression of incipient love, the younger one having a face beaming with intelligence, the arch expression of which is scarcely to be surpassed. It is a composition not only pleasing at first sight, but one that wins upon the spectator.

As a contrast to the above, we extract a paragraph of a letter from a professed artist, Mr. C. T. Hervé, published in the London Journal:—"The photographer need not, as a matter of course, possess either genius, imagination, historical knowledge, poetical feeling, classical acquirements, or even technical knowledge." We wonder what our critic of the *Art Review* will say to sentiments like this; we think we should scarcely have allowed it to pass without comment.

Mr. J. H. Johnson mentions that by adding about fifteen grains of white wax to an ounce of "Horne's" crystal varnish, a compound is produced that, when poured on the surface of a collodion transparency, gives it the soft effect that is possessed by those printed upon finely ground glass.

Mr. Thomas Grubb, M.R.I.A., has constructed a new view lens that appears likely to supersede those at present in use. We have not yet seen it, but from the description of it we hope much. The flint lens being a cancavo-convex and the crown a meniscus, the combination differs from the ordinary one, not at all in its outward appearance, but in the fact that the internal curve is better calculated to correct the aberration of sphericity, and thus allows of a larger area being employed for the production of a picture without confusion than can be employed with the usual arrangement. This form agrees remarkably *in principle* with one recommended for microscopical purposes, by Mr. Joseph Jackson Lister, as being adapted for the transmission of large angular pencils, an account of which will be found published in the philosophical transactions of the Royal Society in the year 1829. It is also somewhat singular that our most eminent makers of microscopical objectives have been applying the same principle to the object glasses of low power, to increase their angle of aperture, only within the last two years or so.

Messrs. Negretti and Zambra have brought out a new form of stereoscope, which possesses a greater choice of manipulative capabilities than any we have heretofore examined. It consists of a rectangular box, with a sliding part which carries the lenses, and resembles in this respect Scott's and Knight's larger instruments. The lenses are furnished at the sides with shades, so that all extraneous vision can be avoided. There are two milled heads, by which additional lenses, viz., convex with one, concave with the other, can be "turned on" to suit both long and short-sighted observers.

There is also a groove just in front of the diaphragms, that is, midway in the body of he instrument, into which a frame can be lid, carrying two convex lenses that are reuced to a rectangular outline by having egments cut from their edges. Finally, the tereographs can be viewed when they are made to occupy the position last indicated; hus provision is made for various degrees of nlargement of the pictures. It is designated the "Magic Stereoscope." We do not perceive the necessity for the use of the conave and convex spectacle lenses, as the other rrangements admit of every necessary adjustment for any kind of sight.

OUR REPORT AND OPINION OF HE PETZVAL LENSES, WITH REMARKS ON THE OPTICS OF PHOTOGRAPHY.

By the Editor.

We have, by the kindness of Herr Pretsch, had an opportunity of examining carefully the construction and working of the lenses produced by M. Dietzler, under the superintendence of Professor Petzval, and are now ready to state our report upon them, according to promise made to our readers, immediately after having tried M. Voightlander's orthoscopic lenses.

We were unwilling to pronounce any opinion upon a casual examination of either, and were anxious to ascertain what difference (if any) existed between them.

Any difference that there may be is clearly not of principle, but of construction, for not only is this evident upon examination of the two, but is *admitted distinctly* by both disputants. We have rigidly tested, so far as our appliances would permit, two separate sets of Professor Petzval's combinations, each consisting of *six lenses*, arranged in achromatized pairs, two only being intended for use as a portrait combination; while the back pair being removed from its place, and the third pair substituted for it (but *much closer* to the front, which remains in "*statû quo*"), forms the arrangement for landscape work.

The portrait combination produces a most brilliant picture upon the ground glass of the camera; the chemical and visual foci are accurately co-incident and so arranged, that this lens is unusually rapid in working. We must, however, add, that without the introduction of a diaphragm, the resulting proof is not quite so sharp as the visual image appears. In this arrangement there is no novelty, neither is any claimed; but when the achromatic dispersing combination is conjoined with the front compound lens of those used for portraiture, an arrangement is introduced, which differs materially in principle from any hitherto employed for landscape photography, but is, like the preceding, also corrected for the chemical rays, which are brought to a focus at the same spot as those which produce the visual image.

The ordinary landscape lens consists of a single achromatized pair, cemented together at their contact surfaces, the external surfaces being such as to produce a meniscus lens when the two are united; and a diaphragm, with a more or less contracted aperture, is placed at a certain distance in front of, and away from, the combination, which has the concave surface presented towards the object, and the convex one towards the sensitive plate. Here, then, is a material point of difference: in one the pencil of rays, falling from any part of the object, is received upon a *convex* surface, and wholly transmitted; in the other the corresponding pencil is limited at once by the diaphragm, and received upon a *concave* surface—in both cases, however, converging after transmission. But in the Petzval lens, the pencil transmitted by the first refracting medium is not suffered to reach its destination in that condition, being *partially arrested* by the inferior diameter of the posterior combination, *which even, when the whole of its aperture is employed,* acts as a diaphragm, while the rays transmitted have their direction changed, and although their convergence is not destroyed, is so materially diminished that they do not come to a focus until they arrive at a point very much more distant from the lens than that of their original destination. In both cases, then, there is *in effect* a diaphragm employed, and its office is threefold, viz.—first, to obtain a uniform amount of illumination over the whole field of delineation; second, to employ different portions of the refracting surfaces for the various oblique and centrical pencils of rays; and third, to limit the diameter of the transmitted pencils according to the exigencies of the subject.

The field of delineation is chemically flatter in the Petzval combination from objects situated in the same plane, than that of the ordinary lens, partly because the focal length for any given surface of picture is greater in the former than in the latter; hence its applicability for copying maps, drawings, &c. But in landscape photography this quality is very rarely of much advantage, because the various parts of the subject being situated in *many planes*, the aperture of the lens employed, no matter what its construction, must necessarily be materially contracted in order to avoid the indistinctness that would otherwise arise from the varying distances from the lens of the *circles of least confusion* forming the respective parts of the picture. In its application for landscape purposes, properly so called, (*i.e.* not for the delineation of plane surfaces) it is not possible to employ an aperture transmitting a larger ANGULAR *pencil of rays* than with the ordinary view lens; consequently there is no gain in rapidity of impression. We are, of course, in this comparison, supposing the single combination to be one of the best possible construction; in fact, such an one as M. Petzval himself would produce if it pleased him to do so.

The equality of illumination, with regard to the various parts of the picture, in the one case, is as much effected by the diaphragm as in the other by the smaller dimensions of the second pair of lenses; therefore the great stress laid upon the presumed advantage in this quality possessed by the new arrangement is not, in our opinion, warranted by the facts.

We now come to another point of difference between the two instruments which we have been comparing, that is, their capability of rendering *straight lines*. In either case (except when the image is formed through the axis of the lens) it is represented by the *segment of a curve* of longer or shorter radius, the curvature increasing in extent in proportion to the lateral divergence of the image from the centre of the picture. The *direction* of the curvature is determined by the position of the diaphragm with regard to the convex lens, and hence in Petzval's arrangement the extremities of a line represented that should be straight *diverge* more or less from the central perpendicular or horizontal line, while in the ordinary construction they *converge* towards it. We, therefore, do not perceive any superiority on that point. It is a mere matter of choice of one of two evils. The conclusion, then, at which we arrive is simply that, with the single exception of a more correct transcript of *flat surfaces*, the new lens in no way surpasses good ones of the old construction.

We have, however, not yet done with the subject, as we think we can indicate a direction in which valuable service can be rendered by the Petzval lens. The suggestion to which we refer originally emanated from the late Fred. Scott Archer, with whom we frequently discussed optical questions. At the time when the subject was first broached we at once admitted the probable value, but it is only recently that we have put it to the test and practically confirm it, although we are aware that Mr. Archer himself not unfrequently employed it.

We have above alluded to the capability of lenses in rendering more or less correctly the images of straight lines: this is accomplished most accurately by means of a portrait combination, having a diaphragm placed between its constituent lens; owing, however, to its comparatively short focus, the *curvature of field is greater* than with a single or Petzval's view lens.

By the introduction, however, of a concave lens of moderate dimensions and slight power, at the spot occupied by the central diaphragm, an increase in focal length of the whole combination to almost any extent can be obtained without interfering with the rectitude of the lines, and this forms a most valuable adjunct for the delineation of landscape subjects, especially where it is difficult or impossible to retire to a sufficiently long distance in order to include the whole of a subject on the amount of surface that can be covered by a single lens, because the *angle of picture* included is not so soon limited by the excess of curvature in the lines in the former as in the latter case.

We have been making experiments with Petzval's combination, to ascertain if it be possible to avail ourselves of the whole three pair at once by making the smaller one take the place of the small concave in our own instrument; but this is not quite satisfactory with this lens as at present sent out, though we have no doubt but that by some slight modification it might be turned to very good account. For instance, by allowing the dispersing combination to retain its position with reference to the front one that it usually holds when arranged for landscape work, reducing the aperture to about one half of the whole diameter of the lens, and then attaching the back combination at some greater distance than the mounting properly allows, a portrait of enlarged size, as compared with the two usually employed, *can* be obtained.

We are not quite satisfied, however, that this might not be improved by reversing the position in the cell of the constituents of the achromatic dispersing combination.

Here then are two directions in which optical assistance may be made to go further in photography than it does at present, viz., in producing a lens for landscape work to include a still larger angle of picture than usual, and in rendering a moderately large portrait combination capable of taking, upon occasion, pictures on a still larger scale than usual, and this we conceive can be done so as to work in nearly as short a time as the large lenses at present employed, because the rapidity of action is dependent upon the *angle of the pencil of transmitted rays.*

We are by no means convinced that it would be impracticable to produce also a useful landscape combination, by means of a couple of single convex lenses at each end of a short tube, corrected by a smaller concave of flint glass in a central diaphragm, although we are aware that it is not advisable to transmit an uncorrected pencil of light any longer distance than absolutely necessary; but, be this as it may, we are persuaded that the resourses of optical science are as yet far from having been exhausted in their application to photography.

ON THE WET COLLODION PROCESS.

By Mr. J. A. Judge.

[Read before the North London Photographic Society.]

(Concluded from page 143.)

In the winter, and in dull weather, the solution should be rather stronger—say one-and-a-half grain of pyrogallic to the ounce, the quantity of acetic remaining the same. It is well not to weigh the pyro in the operating room, as, being extremely light, it will, without grèat care is used, be blown about the room, and get into the solutions.

The fixing solution is merely a saturated solution of hyposulphite of soda. Cyanide of potassium, which is sometimes recommended for the purpose, although not requiring as much washing as the hypo, is very liable to attack the half-tones, and destroy the beauty of the negative.

VARNISH.

Spirit varnish, requiring a slight heat, will be found better than either amber or chloroform, or benzole varnish.

A beginner should never attempt to take portraits at first; he must practise upon objects of still life—a house or landscape opposite his window. When proficient, and he has become used to the management of his apparatus, then, and then only, should he try his hand at portraiture.

Before commencing to clean and coat his plate he should set up his camera and get the object to be taken as sharp as possible upon the ground glass; he will then only have to place the slide in the groove on bringing it from the dark room, otherwise the plate is liable to be left too long in the bath and to become filled with minute holes. In any case it is always well to focus roughly before commencing.

The plates can be cleaned with a solution of washing soda, if the water used be not too hard, but if it contain a large quantity of lime the glasses seem liable to become coated with it, and it is very difficult afterwards to obtain a clean surface. Liquid ammonia and tripoli are recommended, but although a nice polish can be obtained their use, everything becomes covered with particles of dust, which are very annoying. is always better to clean the plates in a room joining the operating room as, however care- ly the cloths may be kept, there is always a tain amount of dust and fluff flying about.

After rubbing the plates on both sides and ges with a strongish solution of cyanide of tassium or carbonate of soda, by means of a arse piece of rag, well rinse under a stream flowing water, continually rubbing the plate ith the fingers, and dry off immediately with clean cloth. Do not let the plate dry spon- neously, as you will rarely get a clean plate that means. As you clean the plates place em face to face against the wall, or in a awer; and as required for use finally rub them er with a mixture of spirit and ether, dust the rface with a piece of fine clean muslin, and at immediately afterwards.

There are several ways of pouring on the col- dion; the best, I believe, is to hold the plate the left hand by the left-hand corner, and to our the collodion first on the right-hand orner, allowing it to flow towards the left voiding to touch the thumb) and then down he plate, pouring off the superfluous liquid by he lower end. Whilst coating, the plate should e so held as to be able to look down the surface f it and perceive any floating particles of dust r film detached from the edge of the collodion ottle. Should any such exist, pour on a larger uantity of collodion so as to remove it bodily rom the plate. Rest the plate on the neck of he bottle, and cant it gently from side to side ntil the lines which are at first formed run into ach other, and the film presents an even, structureless surface. Do not press the plate too hard upon the edge of the bottle, neither give it too rapid a motion—by so doing, pieces of glass are rubbed off the edge of the plate, stick to the neck of the collodion bottle, and are carried on to the next plate that may be coated. The film must be allowed to set before being plunged into the bath; if put in too rapidly the film will peel off in flakes at the end last coated, and if kept out too long a time the film will detach itself from the plate, and allow the developing and fixing solutions to get under it, rendering it very dangerous to wash afterwards. The same effect takes place with an old bath. In cold weather the operator, if not on the alert, is liable to be led into error if, after coating plates that have been washed some hours and left in the operating room, he uses one that has been freshly washed in cold water, and has not remained sufficiently long in the operating room to have acquired a higher temperature. When the film has had the requisite time to set, plunge the plate at one movement into the bath. It should be taken out and examined after the lapse of about two minutes, and if it still presents a greasy appearance plunge and replunge it into the bath two or three times, and when the oiliness has disappeared it is ready for draining. The bath should be so placed with respect to the window as to allow the light to rake along the surface of the glass when removed from the bath You are enabled to see whether any particles of dirt, &c., are adhering to the surface of the film, and if so, remove by re-dipping into the bath. It must not be allowed to remain too long a time in the bath, as a long immersion tends to render the plate insensitive, and to flatten the resulting picture. The negative also becomes filled with a number of minute holes, which are distinctly visible in the positive picture.

Now remove the plate from the dipper, and examine, by placing between you and the light, which is the best end of the plate: if for a landscape use this for the foreground, the blemishes, if any, being readily got rid of in the sky, by painting out or otherwise. In this case turn the blemished end downwards, and allow it to drain from that end for about two minutes, or until the liquid no longer drops from the corner of the plate; then place it in the dark slide, having previously put small pieces of clean blotting-paper in the corners of the frame to prevent stains from a return of the solution. In carrying the slide, keep it in the same relative position as it will occupy when in the camera, and if the glass room in which you are operating is a very warm one leave the slide outside until wanted, if out of doors place it in the shade. Do not allow it to remain longer than five minutes before exposing, especially in hot weather, the film will otherwise become dry in patches, and the nitrate solution will attack the iodide of silver very energetically.

I omitted to mention that if the bath solution is allowed to remain in the bath for a few days, the top of it will become covered with floating particles of film, dust, reduced silver, &c., which will stick to the collodion on immersion, and give rise to blemishes in the negative. This film should be removed with a piece of clean blotting-paper, and the solution agitated with the dipper, until the whole disappears.

The following notes were also added by Mr. Judge:

It is advisable to place a sheet of blotting paper behind the plates, and the spring of the dark frame should be electro-plated, as, in case it is requisite to re-dip the plate in the bath, the particles of reduced silver which would be formed by the brass would be apt to produce blemishes upon subsequent plates.

The slides should be kept clean and dry externally, so as not to soil the fingers, which should be washed before and after each operation. Do not use finger stalls as they are apt to produce stains on the plates.

After focussing, use a dark cloth to cover the lens instead of the cap, as it is more convenient and less liable to alter the focus by accident.

The proper management of the light is of the utmost importance, as well as the time of exposure, which is better to be over than under done.

Accustom yourself to count seconds, and do not look at the sitter, or move about in order to avoid attracting attention.

According to locality, the time of exposure is affected by the direction of the wind; for instance, at the west end of town a longer exposure is requisite with an easterly wind.

In moist weather it makes a material difference whether a picture of a given size be taken with a lens that requires to be a long or a short distance from the sitter, as the intervening moisture retards the actinic action more at a long than at a short distance, and the result is less brilliant than it would be with the shorter distance.

After the exposure, do not wave about the slide, and remove the plate with the same edge downwards, as when in the camera, to avoid any chance of the nitrate of silver solution that has drained off it running back and staining the plate, or carrying particles of dust, &c., with it.

In developing, pour on the solution towards the end to which the drainage has been carried; the high lights should appear first, but not too suddenly, then the half and intermediate tones.

Should the picture be under exposed, and it be impossible to get another, it may be saved by washing off the developing solution containing silver, and using plain pyrogallic solution, thus avoiding, in a great measure, too great intensity of light and depth of shadows.

If over exposed, it may be known by the whole of the picture appearing at a flash. Develop till the details are out, then use fresh pyrogallic solution, with some silver to blacken it.

In any case long development gives the *soundest* picture. Carried on till the high lights are almost opaque, and the hyposulphite of soda generally removes slight fogginess.

In fixing it is not necessary to *wash* off the developing solution before pouring on the hyposulphite of soda, nor to reject the latter after use, as it does not then attack the half tones. Wash one-half of the plate at a time.

Should the collodion slip, the best way is to allow it to run a little way over the edge of the plate and then clinch it, washing gently the other way; and should a piece break at the edges, it is better to remove it with the fingers than to allow it to wash off, as it in that case frequently tears away a large piece.

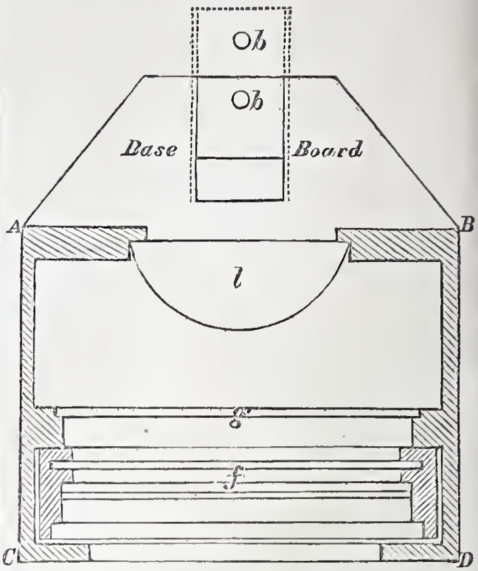
Drain on a shelf with blotting paper, and do not remove it after once it is set down until dry. Keep the back of the plate upwards, as dust will stick to the film while wet. Spirit varnish is preferable to amber varnish, as the latter softens in the sun.

SKETCH AND DESCRIPTION OF A CAMERA FOR CONTACT PRINTING FROM TRANSFERS, BY ARTIFICIAL LIGHT.

By W. Ross, Esq., New York.

It is well known to all who have attempted to print in this manner by an open lamp, that the centre is more strongly impressed than the extremities, especially if the tablets are large. Even a tablet four inches square will shew a little of this inequality, scarcely observable in this size, but rapidly increasing in proportion as the tablets are larger. To obviate as far as possible this inequality of action, I have recently constructed a camera, which to me appears to accomplish this desideratum, and from the following sketch and description any person may have one constructed to suit the size of the pictures they intend to produce.

The lens of the one I employ is four inches diameter and five inches focus, it is therefore nearly hemispherical. Its use is to cause the diverging rays from the burner (gas or oil) to diverge less, until they just extend so far as the extremities of the transfer, which should not for this lens exceed six inches square. This is easily accomplished by bringing the burner *b* nearer to or farther from the lens *l*, which is attached in front of the camera to a sliding piece for this purpose. When the burner is as far as the focal length of the lens in front of it, the rays of light pass through the lens parallel; but when the burner is nearer than this distance, the rays diverge, and the divergence is the greater as the distance between the lens and burner is less: hence the smaller the transfer the less will the rays be required to diverge, the greater the *quantity* of light which will be thrown on any given area of the transfer, and the quicker will the impression be made. In order to diffuse the light equably over the transfer, a piece of ground glass *g* is placed between the lens and the transfer, and, unlike other cameras, this ground glass is stationary, as no focussing is required. Another use for the ground glass is to see on it whether or not the light is over or under divergent, or in other words, whether it covers a greater part of the ground glass than the size of the transfer, in which case the burner must be moved farther from the lens; whether it covers less, when, if so, the burner must be moved nearer to the lens; this may be considered equal to the focussing in other cameras. The transfer and the impressible tablet are placed in contact or not, as the latter may be wet or dry; in the former case being separated by slips of paper. Herein is another advantage of the arrangement of the lens and ground glass, the surfaces, though slightly separated by the paper slips, do not shew the vagueness of outline when impressed that is always more or less seen in prints by a bare light, but are always clear and distinct. The two tablets are placed in a dark frame *f* of the usual construction, and introduced into the camera by a door at the top or side, as may be most convenient. The point of greatest illuminating power of the burner must be at all times in the axis of the lens; hence it must be capable of being moved in any direction. If gas, it can be supplied to an ordinary burner fixed to a sliding piece on the camera by a flexible tube of any required length.

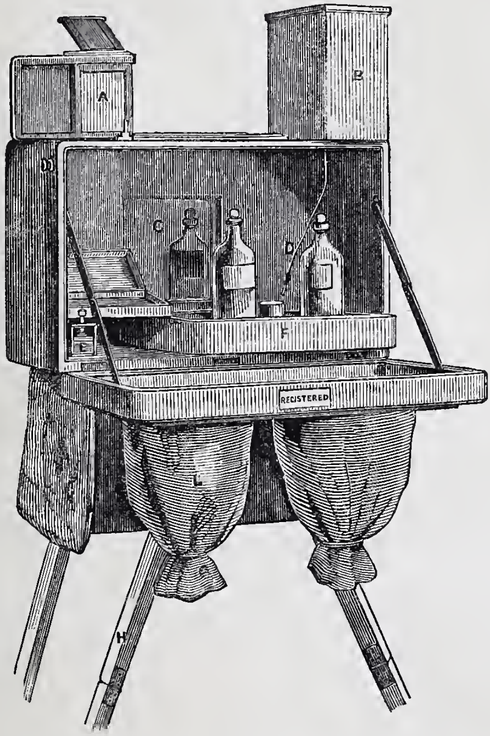


References to the diagram—*A B C D* camera box: *b* the burner: *l* the lens: *g* ground glass: *f* dark frame containing the transfer and impressible tablet.

Some 'cute Yankee will now be able to get a patent for this instrument, perhaps under the name of "*Stellar*," or "*Sidereal Camera*," as has already happened to the *Megascopic* Camera I described in the "*American Artizan*" in 1851, and has since been described in Jabez Hogg's "*Natural Philosophy*," published in London, in 1853, at page 257, fully five years before the grant of the patent for the "*Solar Camera*," as now called, instead of Megascopic. So much for the severe scrutiny in the American Patent Office. A change of *name* makes an old instrument patentable!

PORTABLE DARK OPERATING CHAMBER.

It being now the height of the season for out of door photography, and as we are constantly receiving applications for information relative to dark tents and other appliances for taking pictures at a distance from home, we purpose describing from time to time any such as, in our opinion, may be adapted for meeting the requirements of our various correspondents, thus giving them the opportunity of selecting such as may best suit each one's special purpose.



We therefore commence with the description of a registered operating chamber, contrived by Mr. Rouch, which we have recently examined, and of which the annexed cut will materially facilitate the comprehension by our readers.

The principle is identical with that adopted by the late F. Scott Archer for his camera, though the details are entirely different.

An ordinary rectangular box of half-inch deal, blackened externally, and lined with yellow, forms the chamber, the dimensions being about twenty-one inches from side to side, by twelve or thirteen inches in height and depth. This box is attached to a tripod stand by its "*back*," (which is, however, really the bottom of the case), and the lid, consequently, in opening falls towards the operator, but is prevented from dropping below a horizontal position by means of a couple of jointed metallic stays shewn in the wood cut. A pair of flexible light tight sleeves, with elastic terminations, admit of the introduction of the hands, when the lid is closed, for manipulating.

In the lid or door, just below where the word "registered" is seen, is a small pane of yellow glass, which serves to look through when operating, while a similar but larger pane of yellow glass is let into the opposite side of the box at C for the purpose of admitting light of non-actinic property, and a small yellow curtain is capable of being drawn in front of the last to moderate the light if too strong; both openings can be entirely closed by means of shutters, and in this condition the whole answers as a packing case for bath, water, chemicals, plates, and small camera.

A gutta percha tray is employed to receive the droppings of the chemicals and water used for washing the finished plates; and for the last-named purpose an ingenious arrangement is adopted, which will be understood by reference to the drawing. At B is seen a rectangular vessel filled with water, which may be made of wood or tin rendered unaffected by water by means of japan or other varnish, or may be constructed of gutta percha. From this reservoir a small flexible tube D, having a spring clip attached, conveys the water to the plate in a most convenient manner, and this may be either attached permanently to the bottom of the reservoir, or inserted as a syphon.

The exciting bath, which is of course one with a water-tight lid, when in use drops into a flexible rectangular bag on the left side of the chamber, and is furnished with a sloping hinged lid, attached to the side of the box, to prevent the accidental introduction of a few drops of any of the various solutions while operating.

The points of special commendation in the above are, its being made of deal, which renders it both moderate in weight and economical, while its answering for a packing case for the chemicals is correct in principle.

We have also noticed that there is a folding tripod intended for use with the above, but have not seen sufficient of the latter to speak with certainty as to its utility.

REVIEWS.

A Manual of Photographic Manipulation.
By Lake Price.
(J. Churchill, New Burlington-street.)

This work, as might have been expected from the well known reputation of the author, fills up a void in photographic literature, and supplies a want that has long been painfully apparent.

It is divided into six separate sections, or parts, besides a short introduction. Part 1 treats of the optical agents; Part 2, of those mechanical; Part 3, manipulation; Part 4, of subjects, their nature and treatment; Part 5, printing processes; and Part 6, solutions and chemicals.

It will be seen at a glance that the important feature is that included in Part 4, which embraces, indeed, fully one-third of the whole work, and we do not hesitate to affirm, that from no other source that we are aware of at present before the public can the photographic student obtain anything approaching to an equal amount of instruction in the artistic branch of his profession.

There are many striking paragraphs which we should like to extract, but must content ourselves with the few following. Alluding to instantaneous pictures, we find:—

"All these subjects and many others will be glorious things to look upon, when they shall be rendered perfectly by Nature's own drawing. Shorten the time which the nervous sitter has to remain under the mesmeric influence of a gigantic glass eye, and you will see his contracted and rigid features expand, and a genial light diffuse itself over his face, and life and nature will be worthily represented."

"The class of subject the best adapted for this treatment is the marine—in it a more even balance of light and photographic action exists between the sky and the water which, with all its markings, will come out as rapidly as the sky itself. River scenery offers more hindrance than other landscape, as the greens of the foliage, and the blue and grey reflexions of the sky on the surface of the water, have very unequal action; and a developement which shall suit both is difficult: avoid taking such subjects looking *towards* the sun, as then the trees will be black masses without any drawing."

While insisting on the superior advantages of smaller pictures, if perfect, over those of larger dimensions, if imperfect:—

"In looking at a series of architectural photographs of the foregoing description, it is impossible not to wish for the completion of the *subject* by the selection of a more picturesque point of sight, the infusion of more artistic qualities into its composition, and its completion, as a whole, by the representation of that foreground and accessories which in nature made it captivating by contrast, and formed a base from which the edifices represented rose.

"The *mere size* of some of the larger subjects of architecture, does not compensate to the artist for the loss of those incidents of composition, and qualities of light and shade, he would have preferred seeing in the picture, and which, at *less dimensions*, were quite within the scope and province of the lens.

"Medium sizes, therefore, are desirable, which shall enable the photographer to produce *pictures* having the composition of line, and qualities of light and shade we are accustomed to admire in the works of the painters who have treated this class of subject. The photograph possessing in addition, the interest given by its being the actual reflex of most interesting localities, and the gratification imparted by the delicacy and minuteness of its execution."

And amongst the usefel hints is the following:—

"When the operator desires to produce a minute representation of a flank of an edifice, as a geometrical elevation, the mode of proceeding is as follows. If windows in buildings immediately opposite permit, endeavour that the lens shall be placed at about one-third the height of the subject, instead of on the ground, whereby the proportions will be better observed in the picture. Carefully *level* the camera with the spirit-level, to preserve the lines in the perpendicular, and use the *smallest diaphragm* the nature of the light will allow. These pictures will be perfectly calculated for the use of architects, as if skilfully taken they may be considered as *exactly drawn to scale*."

The optical section of the work contains, in our opinion, too much or too little—too much if the reader knows anything of the subject, and decidedly too little if he does not. We could have wished, also, that the chapters on astronomical and microscopical photography had been altogether omitted, as the author is evidently unfamiliar with both these branches of the art. The fault lies, however, perhaps more with the public than the author, as if the former will insist upon bread, when no bread is to be had, it must not be astonished at receiving a stone.

The Turpentine Waxed-paper Process Described and Illustrated.

By the Rev. J. Lawson Sisson.

(A. Marion and Co., 152, Regent-street.)

If, as the old adage has it, "the proof of the pudding is in the eating," then the process described in the pamphlet must be a good one; for the illustrations which are included, in the form of two pair of stereographs, certainly testify strongly in its favour, and are of themselves alone fully worth the whole of the price charged for the book.

There is some novelty, also, in the mounting of the pictures exhibited in the brilliancy of the varnish which covers them, and which, for stereoscopic subjects upon paper, is a desirable acquisition, materially enhancing the effect.

We can by no means, however, agree to the soundness of some of the *opinions* expressed by the author of the work, especially in connection with the printing process. For instance, we deny that there is any ground for supposing that proofs obtained by developement are one whit more likely to be permanent than those produced by what is termed sun-printing; on the contrary, it has been shewn, by carefully conducted experiments, that such is not the case.

Again, we do not approve of a pressure frame where springs are used instead of screws to effect the requisite contact between the paper and negative. We could cite several other objections, but as long as the world remains there will probably be differences of opinion. In conclusion, we may remark that, as regards the details of the particular process treated of, they are lucidly and carefully described.

⁂ *Several important articles in type, are left over for want of space. Four additional pages will be given with the next number.*

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor,* George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

SPOILED NITRATE BATH.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In emptying my nitrate of silver solution, 12 ounces, into the bath this morning, I inadvertently took a bath containing the following solution:—

Nitrate of magnesia	4 ounces,
Nitrate of silver	12 grains,
Glacial acetic acid	4 drachms,
Distilled water	12 ounces,

which I had mixed to try the dry process of Messrs. Spiller and Crookes, and did not perceive my mistake till too late to rectify it. The two solutions when thus mixed formed one of a milky appearance, and a white precipitate has since fallen to the bottom. Will you have the kindness to inform me whether the silver solution can be made available again?

I remain, Sir, yours obediently,

June 7th, 1858, ALPHA.

[We fear that your only remedy will be to reduce the silver to the form of a chloride by the addition of salt and water, and subsequently to the metallic state by means of a flux. It is, however, possible that by the careful addition of ammonia, you might throw down the silver in the form of an oxide, which could be rendered available for photographic printing by subsequent re-solution in ammonia—try this. To convert the silver into a carbonate, with a view to dissolving it again in nitric acid, is not applicable in the present instance, as the magnesia would also be re-dissolved.—Ed.]

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—In the report of the last meeting of the Historic Society of Lancashire and Cheshire, allusion is made to the exhibition of the Petzval lenses by Mr. Howe, from Messrs. Knight & Co., London. With the report, I expected to have seen a notice of a statement made by the above-named gentleman. In his description of the working of this wondrous optical apparatus, he mentioned that the great peculiarity of the invention consisted in the fact, that after the rays had passed through the back lens, they diverged in *curved* lines to form the picture. I should have supposed that the word "curved" had been a slip of the voluble organ, had not the idea been illustrated by a diagram. If this is correct, we may truly say that M. Nièpce's discovery is no longer *the* new property of light. No doubt the subject would have been argued at the time, but it must be remembered that the members of the late Photopraphic Society had only just taken their "oaths and their seats," and might be somewhat diffident; but, fearing that it may go forth to the scientific world that the people of Liverpool are unacquainted with their A B C of optics, I take the liberty, through your valuable pages, of giving Mr. Howe an opportunity of correcting his mistake.—I remain yours, &c.,

Liverpool, June 6th, 1858. W. K.

[We shall be much surprised if our correspondent has not mistaken Mr. Howe's diagram, which probably was intended to exhibit the effect produced by delineating, or rather attempting to delineate, rectangular objects at an angle greater than the lens will bear. Perpendicular and horizontal lines, when represented by *very oblique* pencils, are reproduced by the "orthosopic lens," like a section of a *concave lens,* thus)(.—Ed.]

FAULTY NEGATIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—For some time I have been trying my hand at out-of-door photography, but have been so very unsuccessful that I am dispirited, and now seek for your kind aid to put me in a better way. I enclose a few specimens, and shall be glad if, in your next issue, you will point out the reason why I do not get better printing negatives.

Nos. 1, 2, 3, and 4 are by the collodio-albumen process, as given by Mr. Ackland. Nos. 5 and 6 are by *your own honey process,* as *given* in *recent numbers* of the *Journal* by *yourself.*

The prints are numbered on the back side.

I have proceeded in all the manipulations as Mr. Ackland and yourself advise. Hoping you will do me the favour requested, by noticing this in your next.

Dukenfield West. I am, &c. WINTER.

[Improper exposure in the camera, coupled with errors in development, are the points at fault, except in No. 4, which is nearly correct in both. The stain arises from want of the proof being washed free of the nitrate of silver before being put into the toning bath. It is difficult to decide from your prints alone whether the weakness of the negatives is due to under or over exposure; but No. 6 appears to us as simply requiring further developement, which may even now be carried on further, if it has not been varnished.—Ed.]

ANSWERS TO CORRESPONDENTS.

W. D.—Dr. Norris' process has been published in this *Journal* and also in the *Journal of the Photographic Society,* but we are not aware of any pamphlet on the subject by him. Try Mr. Glover's dry process as published in our No. 9, for May 1, page 111. Mr. Ackland has published a pamphlet on the collodio-albumen process, which is to be had at Messrs. Horne and Thornthwaite's.

Neal Flaherty.—Your letter, &c. have been forwarded to the publishers of the "Photographic Album."

A. Falkland.—Photographic paper is to be purchased of all the dealers in photographic materials; consult the advertisements.

X. X.—No need to be in such a hurry, sensitized chloride paper will keep good under any circumstances that are likely to occur for several *hours,* sometimes for days.

Enquirer.—You will find a reply to your enquiries in our report upon Professor Petzval's lens. We fear that it would be easier to make a new one than mend what you have if in the condition you describe.

One in a Fix.—Your collodion is evidently too weak, but the cause is not apparent from your information. Although you mention how much pyroxyline you employed at first, you do not say *to what extent* you diluted it when you added the ether. The tenderness of the film may arise from too little gun cotton, or from too much water in the alcohol, or both, but we apprehend the former. You had better add a little more gun cotton, and also let your film *set well* before immersion in the sensitizing bath. If the cause is from too much water, put into your collodion several shreds of *gelatine* perfectly dry; let all stand a few days and decant off carefully, the gelatine will abstract most of the water.

P. P.—If you peruse carefully the paper recently published by Mr. Heisch, in our *Journal,* you will find what you require.

M. M.—We cannot undertake it.

James.—Time will improve it.

Received.—J. B——n., B. J. Nawell, Young Photo, and A Constant Reader.

An Amateur, Windermere, John North, E. G. Roovin, Shipley, and F. Manders, in our next.

THIS DAY, No. II. JULY, ONE SHILLING.

MELIORA. Contents:—1. Paterson, Founder of the Bank of England. 2. Consolidation and Amendment of the Statute Law. 3. How shall we dispose of our Dead? 4. Homer: his Translators and Commentators. 5. The Social Power of the Pulpit. 6. Popular Art-Education. 7. Temperance in History. 8. Our Friends in Council. 9. Record of Social Politics. 10. Literary Reviews.

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MORLEY'S IMPROVED FOLDING CAMERAS, for Dry Plates (on the principle of Capt. Fowke's Camera). The lightest in use, combining firmness with portability, and finished by the best workmen in London. For particulars, apply to Mr. Morley, Pianoforte Warehouse, Islington Green, London, N.

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WANTED, AN OPERATOR well accustomed to the POSITIVE AND NEGATIVE PROCESSES. Apply, stating terms and qualifications, to Messrs. Simonton & Millard, Photographic Institution, 39, Lower Sackville Street, Dublin.

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Containing simple and concise Directions for obtaining Pictures by the Chemical Agency of Light, including the most improved Processes for the production of Positive and Negative Collodion Pictures, and for taking Landscapes, &c., &c., by the Calotype and Waxed Paper Processes; also, clear instructions for the Oxymel Process, and for Printing Positives on Paper, with the method of taking Stereoscopic Pictures. By W. H. Thornthwaite, author of "Photographic Manipulations," &c. Illustrated with numerous Woodcuts.

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Agents for the Liverpool and Manchester Photographic Journal.

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Specimens taken during rain, strong wind, and hottest sunshine, may be seen at the London School of Photography, 46, Church Street, Liverpool, and 1, Market Place, Manchester.

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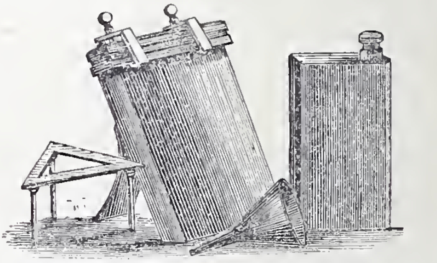
NITRATE OF SILVER, *re-crystallized, perfectly pure and free from* NITRITE. This great desideratum to the Photographer is now being successfully manufactured by HORNE & THORNTHWAITE, Opticians, Philosophical and Photographic Instrument Makers in ordinary to Her Majesty, 121, 122, & 123, Newgate-street, London, who are prepared to supply any quantity at the following prices:—

50 ozs. and upwards	3s. 5d. per oz.
25 „ and under 50 ozs.	3s. 6d. „
10 „ „ 25 „	3s. 7d. „
5 „ „ 10 „	3s. 9d. „
1 „ „ 5 „	4s. 0d. „

Cash must accompany the Order, as Credit cannot be given.

Agents for the Liverpool and Manchester Photographic Journal.



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B. & K.'s improved Water-tight Baths, warranted, at the following moderate prices.

Internal Measurement.	Price.			With tight top.			Internal Measurement.	Price.			With tight top.		
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4½ × 5½	0	2	6	0	7	6	10½ × 13½	0	10	0	0	18	6
5½ × 7½	0	4	0	0	9	6	12½ × 16½	0	13	0	1	1	0
7½ × 10½	0	6	0	0	12	0	13½ × 17½	0	15	0	1	5	0
8½ × 11½	0	7	6	0	13	6	16½ × 19½	1	0	0	1	10	0

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The
Liverpool & Manchester Photographic Journal.

New Series. No. 14, Vol. II.—JULY 15, 1858.

E scarcely know which is the most objeconable extreme, for a man to have too much ssurance or too much bashfulness, but we e convinced that the latter failing with a hotographer entails upon him a very conderable amount of inconvenience.

It is not over pleasant to be mistaken for a gallantee showman" or an "organ grinder," et such is the treatment we have more than nce experienced at the hands of a portion of e juvenile population of these realms; while f those who have made enquiries touching he success of our piscatory predilections, heir name is legion: of course these latter amed shots are those aimed at the "legs" of he tripod. Misconstructions like these have nduced an ingenious but somewhat shameaced photographer to invent an *umbrella ripod*, and as we had very recently an opporunity of carefully examining the apparatus luring a visit of fraternization amongst our Liverpool brethren (to whom we take the resent one of cordially returning our thanks or their kind reception of us), we cannot do etter than endeavour to describe it, for the eneral benefit of photographers who prefer o go about without attracting that universal ttention so generally bestowed upon them.

In our report of the meeting of the Historic Society of Lancashire, p. 134 of the present volume, will be found a simple notice that Mr. Atkinson (of Liverpool) exhibited a *camera stand in the form of an umbrella*, the invention of Mr. Hooper, of Manchester: that is all we know of the origin of the apparatus except what we subsequently heard from Mr. Forrest, being what we have indicated above. We must admit that on reading the report, our curiosity was considerably excited, as to the possible construction of an *umbrella tripod*, and shadowy visions of gusts of wind imparting a graceful but somewhat inconvenient tremulous motion to the camera placed thereon, flitted across our imagination. Then we thought that it was a portable *tent* that must have been intended, and our fancy wandered after umbrellas of the "Mrs. Gamp" style of architecture, the handle being stuck into the ground, with a graceful yellow curtain depending from the rim, and a patient operator upon hands and knees, crawling under to develope his pictures; but, alas! for all human speculations, the reality put them to flight "like the baseless fabric of a vision;" and although we were not favoured with the entertainment we had pictured, we still had some fun out of it on the sands at New Brighton, where we first made acquaintance with the apparatus in question, through the kindness of Mr. Forrest; and a *less conspicuous* piece of apparatus it would be difficult to conceive of.

Imagine an ordinary umbrella in its leathern case, and you have the whole appearance faithfully depicted, nothing more nor less; but put no faith in it: it is a gay deceiver, as far as a shower of rain is concerned—and photography is surreptitiously carried on by its aid. In the first place, having removed the case, you perceive that the *ribs* have dwindled in number to three only; while, instead of their being hinged at the lower part, they are jointed next to the handle, and the central shaft is absent altogether, the rigidity being due to the extra thickness of the three ribs, which are retained in close proximity with one another by means of a sort of cap, which slides over the ends of them, the said cap having the ferule of the presumed umbrella attached thereto.

On removing the cap and ferule, the ribs can be opened out like the legs of an ordinary tripod; but as they are made of metal tubes, they each contain a rod, running through the whole length of the tube, which rods can be drawn out, and the opposite ends inserted for an inch or two into the tubes, the exact distance being regulated by a shoulder with which the rods are furnished, and thus the length of the legs becomes exactly doubled. When packed up, the sharp prongs of the legs are conveniently protected by the tube in which they are carried; but when the rods are reversed for use, of course they occupy their usual position. Finally, the handle itself unscrews, to admit of the attachment of the camera, which, of course, can only be a small one, such as is adapted for taking stereographs, or others not materially larger.

We have been credibly informed that the inventor of the umbrella tripod carries his camera in his hat, but of this we had no ocular demonstration; we think however that in any case he only exchanges the risk of misapprehension amongst his audience from the character of an itinerant musician to that of a conjurer. In sober earnest, however, although we were much amused with the umbrella tripod, and most heartily enjoyed the fun, we cannot but regard it as a most *ingenious contrivance*, and really well adapted to its intended purpose. In case any of our readers should wish to procure one, we may mention that we believe Mr. Atkinson, of Liverpool, has undertaken to prepare a supply of them for the public.

Before quitting our Liverpool friends, we wish to notice a picture with which we were much pleased, the production of Mr. Lee, of Church-street, being a representation of a little child in her bath, attended by her nurse. The subject itself a pleasing one, forms an admirable and most valuable artistic study: not only is the soft round flesh of childhood perfectly depicted, but the *complete repose* of all the muscles most exquisitely represented—a point so difficult of attainment with the brush or pencil, that it is rarely indeed that we see a subject of the kind entirely free from rigidity. In another picture the same little model is taken in the attitude of prayer, and though it also is pleasing, yet there is a want of that absolute truthfulness exhibited in the first-named subject, which appeals with so much force to the mind, that it is at once gratified, while in the other, graceful as it is, it is not so perfectly natural.

We paid a visit, the other day, to the Exhibition of the Royal Academy, with the express object of ascertaining if there were any hints that we could pick up which might be useful in a photographic point of view. In this we certainly were successful, so far as our own mind is concerned; but, though they may be facts, some of them assume such a shadowy shape, that we are fairly puzzled how to attempt to communicate them to our readers. Others, however, are more tangible, and these we shall at once endeavour to indicate. First, then, as regards landscape photography, operators would do well to study the composition of No. 9, *The Rest by the Way*, by N. O. Lupton; 60, *Summer*, by Webster—this last especially; 168, *Mid-day*, by W. F. Witherington; 458, *The Wheatfield*, by J. T. Linnell; 502, *Shepherds*, by J. Linnell, sen.; 553, *The old Monastic Mill which stood beneath Arundel Castle*, by T. Dearmer; 847, *Near Great Marlow, Bucks*, by J. E. Carrick; and 897, *At Lady Farm, Pyrford, Surrey*, by F. W. Hulme. These would not only make excellent subjects for photography, but we think they also point to a practical rule in general to be borne in mind by members of our craft, that is, to select always, as much as possible, a point of view where the near and unimportant parts form a sort of *frame-work*, or at least, a setting, to the principal points of interest in the subject itself. We are not quite satisfied that we have made ourselves intelligible to our readers, but are convinced, at any rate, that a study of the works mentioned will not be lost upon those engaged in landscape photography.

We have two remarks to make, relative to the capabilities of photography—one, that No. 609, *Anstey's Cove South Devon*, we have seen far more effectively rendered by it than by the painting under consideration; while turning to No. 921, *Un marché, avec effets de lune et de la lumière*, by P. Van Schnedel, we feel at once that it would be *impossible* (at least, in the present state of our knowledge) to render it *at all*.

With respect to figure subjects, how delightful it would be to produce such a gem as C. W. Copes' "*Upward Gazing*," No. 52—perhaps not *impossible*, but very, very difficult. The sweet upturned face of the infant, and the attitude of affection in the young mother, are both full of poetry. No. 59, *Fairy Tales*, by W. C. T. Dobson, is a good model for portrait professionals; while for our Rejlander's and Robinson's, No. 231, by R. McInnes, *The approach of a stranger*, No. 232, "*Children's children are the crown of old men, and the glory of children are their fathers*," by J. C. Hook, may furnish valuable suggestions; as also the figure in the sculpture room, No. 1188, by T. Earle—a girl shading her head with the leaf of a water-lily, called, *Happy as a Queen*. As it is highly probable that the "man of baths and chemicals" will get "called over the coals" for his audacity in venturing on these remarks, we feel that, as discretion is the better part of valour, we had better bring them to a conclusion.

We are somewhat astonished at a declaration by the editor of the *Art Review*, in connexion with painting. It is as follows, viz:

That which eye hath not seen, can never be torially represented ;" and again, " * * that the art of painting, which must clusively represent what can be seen." * * Now, had these words been applied to pho- graphs, we could not but have assented ; always thought, however, that one of the ain points insisted on by artists, as eviden- ng the superiority of painting, is its capa- lity of representing not only that which *is*, well as that which *may be*, but also that hich may be conceived in the mind—in ort, the wildest creations of the poet's ncy.

As the following, from the same source, plies to the picture by Mr. Hook, which e remarked upon as suggestive to the ore ambitious amongst photographers, we nnot forbear extracting it :—" There is thing more exquisitely pleasing, and no ene on which the joys of nature seem so lly poured, as when the beauties of external eation are made to ring back in echoes the ee and laughter of a loving, happy house- old, when the father's labour is over, and e mother's anxieties are closed, and the ildren draw out papa for an hour's romp on e green lawn before retiring to rest. If to ese delights the mellowed joys of grandpapa d grandmamma be added, the charm of erry voices cheers the soul like hallelujahs f delight, and the hills and trees and vales ut on a celestial radiance, because innocence nd happiness and beauty dwell together."

Before quitting our friend of the *Art Re- iew and Photographic Record,* we have three bjections to make to his last number. Firstly he following is what he calls a *full descrip- ion* of a new view lens by Mr. Davidson, viz., This new lens is in appearance similar to n ordinary double combination for portraits ; ut the curvatures of the lenses are of course ifferent." Then follows a statement of what t is supposed *to do*, but not a word more of *escription.* Instead of a full description, we hould call it a very " empty" one. Secondly, ve do not know what our good friend, Alfred Rosling, will say to the publication of his ame in connection with a note that is nserted but we rather think that he would ot have written under a "*nom de guerre*" ad he intended it to appear. Thirdly, e thinks fit to insert a letter, expressing isapprobation of the London Photographic Society and the Photographic Society of Scot- and, amongst other things, for *not* having purchased a certain secret for the production f photographs in carbon. We dare say the Scotch Society can take care of itself, but, as ve are a member of the council of the London Society, as well as the conductor of this *Journal*, we feel that our readers may wonder at our silence hitherto upon the subject, having abstained from noticing the remarks of the editor of *Photographic Notes*. We, however, will be silent no longer, but reply to the following, which we find at page 73 of the *Art Review*—" Do they appoint a committee to inquire into the merits of the process, and reward the discoverer? No; London is not Paris; that is not their principle," &c. If the writer were familiar with the proceedings of French Society, he would know that *a committee is* NEVER *granted when the process is not divulged.* We also cordially approve of the conduct of the Photographic Society in this respect, not only because they follow a similar rule, but because we do not think the process is at all a promising one ; and we state this with much regret, for as regards all the proofs that we have been able to examine, there is literally *no half tone whatever*, the test above all others of a *promising* process. An appearance (not the reality) of half tone exists in the copies of engravings, because in them it is produced by the fineness of the lines in the shading, but the very hardness of the process is here a means of deception. Had this declaration not been forced upon us, we should have simply remained silent, but as it is provoked, we can only honestly express our opinion.

We now propose to have a word with the editor of *Photographic Notes*, who, alluding to Mr. Grubb's new landscape lens, says, " we fully appreciate the improvement which he has suggested ; unfortunately, however, it comes too late. The orthoscopic lens of M. Petzval accomplishes what no single view-lens can do, viz., it gives an image free from distortion." We deny the correctness of this assertion, and say, with the Scotchman, " pruv it, mon, pruv it." If we can get hold of No. 33 of *Photographic Notes* we intend overhauling the formula to which the editor alludes, as including Mr. Grubb's arrangement—we are sceptical upon the point.

A correspondent of the editor of *Photographic Notes*, Mr. John Beattie, of Bristol, writing about the carbon printing process, says, " *If need be, I can prove* the pencil to be absolutely necessary to the production of a correct resemblance of nature in portraiture ;" (the italics are his own). We wish he would try—with us.

Having now had a good share of tilting against all comers, we will conclude with an extract from another correspondent's communication, appearing in the same number, which strikes us as somewhat comical. In describing a substitute for a tent for working with collodion out of doors, he says, " I then draw the string *tight round my neck* and fasten it, insert my hands," &c. ; and further on, "I feel sure that every photographer would like the plan if he once tried." All we can say is—"*de gustibus non est disputandum.*

We noticed the other day a case in the police court which may affect some of the cheap portrait takers. A porter at one of these establishments attended to request the grant of a summons against a gentleman for having smashed a photographic likeness exposed outside. On making enquiries the magistrate ascertained that the likeness in question was that of the gentleman's own wife which had been thus exhibited, and he declined to grant any summons under the circumstances, upon the ground that the applicant had no right to the likeness in question, it having been surreptitiously obtained. We confess that we were gratified at the decision, as we have, on more occasions than one, observed much annoyance caused by a similar practice.

SUGGESTIONS RELATIVE TO TESTING QUALITIES OF GLASS INTENDED FOR PHOTOGRAPHIC OPERATING ROOMS.

By the Editor.

The sub-committee of the Liverpool Photographic Society, which has been charged with the investigation of the question above indicated, as well as the changes which various kinds of glass undergo, is composed of members too much in earnest in the promotion of photographic science to take umbrage at having a few suggestions offered for their consideration, which we consider calculated to enhance materially the value of the result of their labours.

It has been argued by one side, that glass tinted of a light blue colour is preferable to simple white glass for the purpose, while the other side contends that blue glass has already been tried, and found inferior to the uncoloured sort; but further, that the coloured glass is found by experience to deepen in shade by exposure, and at the same time to retard the actinic action materially. A reply has been given, that class of a *dark* blue has been tried, but that the recent recommendation has been for a lightly-tinted article, and that it by no means follows, that because colour in excess may be banefnl, a smaller amount of intensity is necessarily equally, or even proportionably injurious; and further, that every kind of glass that is tinted does not become deeper by exposure.

In the discussion that has taken place nothing appears to have been said about the medium by which the colour is produced as bearing upon the question of retardation of the actinic force, although it has been noticed with reference to the change by exposure; but in our opinion, this point is deserving of far more attention than has hitherto been accorded to it. We have a notion, founded upon more than surmise, that it will be found upon trial, that the nature of the materials employed in the manufacture of the various kinds of glass has as much to do with the effect as *colour*, possibly more.

In fact, we think we can trace a suspicion of this supposition in the remarks made by one of the gentlemen of the committee, and we would strongly urge him to experiment in this direction, the more particularly as he has opportunities for so doing above the generality of photographers.

Let us review what has already come to light bearing upon this subject, and we shall probably be able to arrive at some conclusion as to the possible utility of such an investigation as we have indicated.

Professor Stokes, to whom photographers are deeply indebted for some valuable researches into the nature of fluorescent bodies, has shewn that a solution of disulphate of quinine, of about an inch in depth, is capable of arresting *the whole* of the actinic part of the solar light—the solution named being of a purely limpid and colourless nature—although the arrested rays are capable of being perceived by the eye, when looking nearly at right angles to the plane of interception, and present a somewhat blueish appearance. In a similar manner he has also shewn, that an infusion of the bark of the horse-chesnut, and also of the seeds of the datura-stramoniun are endowed with a similar property. The first-named instance is that, however, which bears most strongly upon the matter under consideration, as shewing that the effect is not due to any *colour* in the material; the others are valuable, as shewing that the solution first cited is not the only one possessing this remarkable power. At a lecture given by this gentleman at the Royal Institution, he exhibited many interesting experiments relative to the powers of certain media in stopping the passage of the actinic rays; amongst others, he shewed that glass stained of a light yellow colour by means of oxide of bismuth, possesses this quality in an eminent degree.

Professor Robert Hunt has also noticed the fact, that of two samples of glass, stained of a yellow colour, of equal intensity (the one by means of oxide of silver, the other by means of carbon), the former is much more active than the latter in arresting the chemical rays.

It is also pretty notorious that the time of exposure required in any glass-room is greater than in the open air, though some rooms are more obstructive than others, and that not always in proportion to their apparent light.

With regard to light reflected from variously coloured surfaces, the molecular condition of the surfaces exercise a material influence upon the comparative results, as the following examples will testify, viz:—In landscape photography the peculiar condition of the foliage is a most important point in determining the beauty of the results obtained. In spring time, when the leaves are young, they appear to make a much stronger impression upon the sensitive media generally employed, than when they have attained maturity. Leaves with a polished surface act more vigorously than those destitute of this peculiarity, probably owing to their reflecting a portion of the ordinary white light, as well as radiating that of their own proper colour; but there are few observant photographers who have not noticed that there are numerous occasions when foliage comes out well very unexpectedly, and others, when the reverse is the case; and such exceptions are not capable of any such explanation as that indicated above. Again, some kinds of yellow flowers are very active in mpressing the sensitive surface, whilst others re equally inactive. Buttercups, for instance, lmost invariably appear as small *white* specks n a photograph; while yellow chrysanthemums, of very nearly the same shade, appear as black flowers; as also calceolarias. The dark green leaves and bright yellow clusters of flowers of the berberis (the former being very polished) both impress the film with about equal vigour, although the contrast in nature is very marked. Similar variations may be noticed amongst the blue shades and their compounds; but the point to which we desire to draw particular attention is, that our results are not constant when the conditions of illumination vary.

We remember seeing some few years back a curious illustration of the effect of a *slight* tinge of colour in producing a most marked effect. Our friend Dr. Diamond had been taking the likeness of a little girl (glass positives being then the favourite method), and had experienced two or three failures in consequence of a stain upon the light part of the figure, represented in this case by a pinafore; but, noticing that the form of the stain was alike in two instances, he examined the article of dress itself, and found it slightly soiled by some of the juice of an orange which he had given her to keep her quiet while preparing his plates. Every photographer must have experienced the annoyance of finding a sitter's face appear as if splashed with ink, owing to the presence of freckles: and this defect is sometimes more conspicuous when the sitters happen to be young ladies with very fair and delicate complexions. A remedy for this defect is not unfrequently found in applying a little violet powder; but who knows a remedy for the transformation produced in the appearance of an individual, so far as his photographic portrait is concerned, if he happen to be supplied with the adornment of red hair?

With regard to copies of paintings, we have only to look at many examples in the Photographic Exhibition at South Kensington to be convinced of the undesirable alteration of effect produced by the photographic interpretation of many of them.

We take it that it is a fact beyond question, that *photographers* by *profession* are deeply interested, as a class, in a solution of the difficulty of a correct rendering, in light and shade, of variously coloured paintings, because there are very many artists and connoisseurs who would gladly avail themselves of the skill of an able photographer, in order to multiply, to a moderate extent, copies of their conceptions or possessions in art treasures, provided such a task can be accomplished without the introduction of an amount of caricature.

From certain experiences of our own, we are convinced that a solution of the problem indicated is by no means an impossibility, or even an improbability, and it is to this task especially that we would invite the attention of the committee of investigation on the influence of various kinds of glass used in photography.

In proposing to these gentlemen the undertaking of an arduous, but by no means unpleasing task, it is but right that we should suggest the course of proceeding that strikes us, as being the most ready, having but little doubt that, should they adopt the idea, they will easily improve upon our first crude notions.

We propose, then, the construction of an oblong deal box, say eight feet long, and from eighteen to twenty-four inches square, or perhaps eighteen inches wide by twenty-four inches high—the dimensions not being important, except as regards the general size of sheets of coloured and other glass obtainable. The box should be blackened inside, and at one end a circular aperture made sufficiently large for the introduction of the lens attached to the front of any camera to be employed. A length of about two feet at the opposite end of the long box should be removed from its upper surface, and also from one side (either the right or left), and in these openings some kind of sash or framework should be contrived, capable of receiving temporarily panes of the glasses to be tested. The end of the box itself should be capable of opening upon hinges, in order to allow of the ready introduction of back-grounds of any colours, as well as the subjects to be experimented upon, which may consist of coloured pictures, vases of natural and artificial flowers, porcelain and other figures (white and coloured), in short, every variety of object that can be included within the dimensions of the box. By this arrangement we conceive that all the advantages of a glass operating room for conducting these experiments would be obtained at a small expense, and with the facility of changing the glazing at the cost of a couple of good sized sheets of glass of each kind to be tested.

With regard to the proposed investigations, they will naturally divide themselves into two classes, viz:—first, the examination for ascertaining what kind of glass permits the passage of a maximum amount of the actinic rays; and secondly, the shades that illuminate paintings, or other coloured objects, in such a manner as to allow of a correct representation, in light and shade, of the effects presented to the eye.

We have no doubt that light greens, yellows, reds, and browns will all be found useful under certain circumstances, because, although it may not be possible to stimulate an *inactive* colour, it may be quite practicable to *retard* the violent action of one that is powerful, such as white, or light blue, while the retardation of the more inert kinds is scarcely perceptible.

MANCHESTER PHOTOGRAPHIC SOCIETY.

The last meeting of the above Society was held on the 30th ultimo, at the Literary and Philosophical Society's house; Mr. Sidebotham presided.

A very beautiful collection of photographs, printed from collodio-albumen, collodion, and oxymel plates, were placed upon the table by the Chairman, and Messrs. Mabley, Parry, Young, Wardley, Brothers, and Mann, which two last gentlemen presented three prints for the Society's portfolio.

Mr. Sidebotham reported his success with an orthoscopic lens eleven inches focus, seven-eighths aperture, five minutes exposure, with collodio-albumen. He produced some very satisfactory views of Stonehenge, the Needles, a portrait of Handel, from a German lithograph, and a view of the interior of Bowdon Church, now undergoing demolition—this last had been exposed twenty-five minutes.

A plan for making vignetting glasses was shewn, consisting of a black oval, painted on a board, an image of which being taken with the lens out of focus, answers for this purpose very well.

On the subject of blisters a MEMBER remarked that his bath being by accident only partly full, the part of a plate undipped rose in a large blister, while the immersed portion remained perfectly free from that annoyance. It was said that to avoid blisters four requisites must be observed:—

1st.—Plates to be well dried.

2nd.—Collodion to be thin.

3rd.—Collodion to be allowed to set well before sensitising.

4th.—Albumen to be dried rapidly.

A conversation followed as to some collodio-albumen plates prepared in the broad daylight; after which the following letter from Mr. Roscoe was read, and the meeting terminated:

Owens College, Manchester,
May 4, 1858.

DEAR SIR,—I inclose, for the inspection of the Society, some drawings, sent me by Mr. Campbell, of the Board of Health, Whitehall, shewing the amount of direct sun-light, as measured by his sun-dial, for three half years, from 1854 to 1856.

The description of this registering sun-dial is contained in one of the late numbers of your *Journal*, and will therefore be known to most of your members. It consists simply of a semi-spherical cup or vessel of wood, having a solid spherical glass lens placed on a support in the centre of the cup, so that the focus of the lens falls upon the surface of the wood. The sun, when it shines, burns, therefore, a track in the wood, and the amount of direct sunlight is thus registered.

The results obtained by this instrument, and tabulated in the manner seen in the drawings, will form important additions to our knowledge of meteorology; and as every subject connected with the solar rays is of interest to the photographer, I thought that the members might like to see the relative amount of the sun's burning power, as estimated by Campbell's instrument for three consecutive half years.—Believe me, dear sir, very truly, yours,

HENRY E. ROSCOE.

Samuel Cottam, Esq.

FRENCH PHOTOGRAPHIC SOCIETY.

THE ordinary monthly meeting of this Society was held, at Paris, on the 28th May, when the chair was occupied by Mr. REGNAULT, the President. Two new members were elected and several presents were received. The following letters were read, viz.:—

From M. Alexander Vattemore relative to the collection of American photographs, presented by Major Bowman.

From M. Chas. Chevallier, accompanying a model of a diaphragm of variable aperture, made by him in the year 1840, together with a printed statement of the same date, as follows:

"I have also adapted to my apparatus a variable diaphragm or artificial pupil, which permits of obtaining with one bi-achromatic object-glass, the same sharpness for objects situated at a distance from or near to the instrument." The diaphragm consists of a series of metallic plates simultaneously acted upon by a rack and pinion, causing the edges of the plates by their intersection to form an opening approximating to a circular figure. It appears, then, that the object aimed at by the diaphragm is precisely similar to that of M. Mangey, though the mode of carrying it out differs entirely.

The Abbé Moigno communicated the extract of a letter from Professor Govi, of Florence, claiming to have been the originator of the pupillary diaphragm, constructed of vulcanized india-rubber, in the year 1851, and citing some occasions when it had been publicly exhibited at the professor's lectures.

M. de la Blanchère exhibited some positive impressions from negatives, by his own process, with dry collodion.

M. Quinet presented a negative on glass o about twenty-one inches by seventeen, obtaine upon dry collodion, as prepared by himself, th exposure in the camera having lasted fiv minutes.

M. Jamin exhibited two negatives of abou sixteen and half inches by thirteen inches, being enlarged copies of engravings, taken on mois collodion, by lenses constructed by him upo the "orthoscopic" principle.

The thanks of the Society having been accorded to the respective exhibitors and donors the following letter from M. Hocédé du Tremblay was read:—

"Gentlemen and Colleagues,—The new process for the production of positives, discovere by M. Nièpce de St. Victor, has been accompanied in several photographic journals, as als in the *Moniteur*, with praises calculated to caus its adoption with eagerness by photographers

"To render the proofs unchangeable, and t suppress the use of hyposulphite of soda woul be at once the triumph of this new proces above all others.

"But still it would be requisite that th artistic quality of the results obtained shoul be preserved in a sufficient degree. The comes the question of economy, a secondar one, no doubt; but of some importance neve theless.

"If it fulfils the conditions so highly a nounced, the adoption of Nièpce's process is a useful as desirable; but is this sufficientl proved to induce one to adopt this metho without any fear of being deceived? One ca form an opinion by comparative experiment but many amongst us rightly entertain som mistrust, and their remoteness from Paris leave them dependent upon the information obtaine from the journals, more or less acquainted wit it, more or less explicit: is then a failure to b attributed to the process itself or to their ine perience?

"Hence arises amongst our colleagues a subscribers to the *Bulletin* the legitimate desi to receive advice and counsel from this meetin of photographers, associated to encourage, pr pagate, and examine, each to the utmost of h power, works of photography, and to indica and record the progress.

"Useful to all—these counsels are indispe sable to those ignorant of chemistry.

"As far as regards myself I admit that I regret having found nothing in the *Bulletin* relative to the printing process of Nièpce. Will the Society remain silent on the carrying out of a method signalized as one which ought to produce a revolution in photography. I shall, without doubt, only anticipate the intentions of the Council in requesting them, in my own name, and in that of several of our colleagues, to be kind enough to take the following questions into consideration, viz. :—

"1.—Is the process of printing by nitrate of uranium, and fixing with pure water, superior to the old method, in which the unalterability of the proof is insured by substances destructive of the sensitive agent?

"2.—Respecting the quality of the proofs obtained by this process, the brilliancy, the richness of tone, in fact, the artistic value, is it equal or superior to that of those hitherto obtained?

"3.—Is it economical?

"4.—What are the comparative advantages and disadvantages of the two modes of manipulation under consideration?

"I dare to reckon, gentlemen, upon a favourable consideration of these questions, trusting, in common with all those devoted to our art, that a serious examination will bring a new glory to that name which is deservedly so dear to us, and place a new discovery more within the reach of us all."

The PRESIDENT remarked, that M. Nièpce de St. Victor considered the facts which he had published as belonging rather to the domain of scientific observation, than to that of practical photography. His intention was to throw open a new field for researches, in which photographers ought to exercise themselves. He thought further that the methods derived from the facts that he had observed *require the sanction of experience*, and that it is not at first that the best results are obtained. If then the Society appoints a committee to examine this process, it is only on the ascertained facts that they ought to report, rather than on the probable future of the process itself.

M. PAUL PERIER seconded the proposition of M. Hocédé du Tremblay. It appeared to him in fact difficult for the public to separate the discoveries of M. Nièpce de St. Victor from that which has been said in connexion therewith. No one would be more pleased than himself to see realised all the promises made in connection with this process, not so much by M. Nièpce de St. Victor, as by those who have published them with an enthusiasm which he is far from disapproving, but which he should like to see light itself perform. It has been stated, in fact, that the nitrate of uranium processes presents such advantages over those in common use, that the latter should be abandoned in favour of the former. In the face of these assertions, those photographers who, far from head quarters, are left to their own exertions, find themselves exposed to such embarrasments and discouraging failures, that they are unable to succeed in their attempts. The *Bulletin* of the Society ought then to come to their assistance, and it would not be natural that in such a question it should remain silent, after having simply inserted the two *Memoires* of M. Nièpce de St. Victor; for a publication of this kind is not so much for those who know most, but for those who know least, and who need to find in it guidance and advice. It would not be proper, it is true, to attempt to predict the future of this process; but the Society ought to publish in its *Bulletin* that which the operators may expect of the process such as it is at present. M. P. Perier asks then that a committee be named to examine the actual value of the process as regards the threefold qualities of artistic excellence, stability, and economy. He affirmed, in conclusion, the importance of enlightening the members of the Society on these points; for, to cite but one example, it has been stated that proofs from the nitrate of uranium enjoy a peculiar stability, resisting the most energetic chemical agents, whilst he knew for a certainty, from the results of some experiments which had been communicated to him from some of the members of the Society, that these proofs fade and change under the same conditions in which ordinary proofs suffer deterioration, when, for example, they are exposed to the action of moist sulphuretted hydrogen or of hydrosulphate of ammonia.

The Abbé Moigno added, that the process is still in its infancy, and that no one could say hitherto that he had seen a beautiful commercial proof obtained by nitrate of uranium.

The matter was then referred to a committee, consisting of MM. Balard, Paul Perier, Bayard, Davanne, and Girard.

M. BALARD proposed that M. Tremblay's letter, as well as the observations to which it had given rise, should be inserted in the *Bulletin*, which was agreed to.

M. DE BLANCHERE said that he was charged officially by M. Nièpce de St. Victor with the investigation of the practical application of his processes. He offered to communicate to the Society a long mèmoire that he had written on the subject, and the publication committee were requested to extract for the *Bulletin* such part as they might consider advisable.

M. DELAHAYE exhibited several uranium prints produced by M. Houday, of Lille, and which were more on the surface than in the fabric of the paper. They were accompanied by a letter laudatory of the process by which they were obtained, which was described as follows:

The paper is prepared with gelatine and nitrate of uranium as directed by M. de Blanchère, developed after insolation with aceto-nitrate of silver as employed for exciting waxed paper for negatives, then floated on a bath of

Water	1 ounce
Protosulphate of iron	40 grains
Acetic acid	10 minims

The impression acquires on this bath a considerable vigour, and leaves the fabric as it were to appear upon the surface of the paper. If the exposure has been too long, it is necessary to wash the proofs slightly before submitting them to the iron bath. When removed from the bath they they are of a sepia tint, but may be toned of a black colour by a bath of chloride of gold, half a grain to the ounce of water.

M. **REGNAULT** enquired whether the protosulphate of iron was the only agent that had been employed.

M. **DAVANNE** said that he had seen the Comt Olympe Aguardo and M. Robert, of Sevres, make some trials in this direction with gallic acid, and that the proofs were decidedly superior to those obtained with the uranium salts alone.*

M. **PORRO** presented his third and concluding paper on the improvements to be introduced into the construction of photographic object glasses. He also presented a lens of new construction applicable to the production of panoramic views.

The thanks of the Society were accorded to M. Porro, and his communication was directed to be inserted in the *Bulletin*.

M. **DAVANNE** reported upon M. Gatel's modification of Taupenot's process. The report was adopted.

MM. **DAVANNE** and **GIRARD** presented a continuation of their researches on paper positives, which was ordered for insertion in the *Bulletin*.

M. **GEORGES DE BELLIO** exhibited a gutta percha funnel, which he had constructed for use in filtering solutions into flat dishes without any extraneous support; the neck of the ordinary funnel being absent, a branched foot is attached, which is done so as to admit of its being stood on a flat dish, or on the neck of a bottle.

A report of the sale of photographs on behalf of the Society concluded the proceedings.

ON VARNISHES FOR PHOTOGRAPHIC PURPOSES.

BY D. VAN MONCKHOVEN.

From La Lumière.

ONE of the most important questions in connexion with photography, is that of covering the tender and fragile film forming the image with a coating of some much harder substance, and which resists perfectly the conditions demanded for the printing of a considerable number of proofs.

During the year 1857, we have submitted this question to a careful and extended research, and purpose detailing here the result of our labours.

The ordinary varnishes of commerce differ from that adapted for photography, in that the latter demands some special qualities (we allude particularly to that intended to protect the film of collodion while printing a number of positives), for instance,

First, it ought to be sufficiently fluid, in order not to give too great transparency to the negative, so as to cause it to lose vigour, yet to be sufficiently thick to preserve the collodion perfectly.

Second, it ought to be insoluble in water, so that the positive shall not become attached to it, in consequence of the moisture which condenses on the glass under the influence of the solar rays.

Third, it must not soften under a temperature of from 140° to 200° Fahrenheit.

Fourth, finally, the liquids which enter into the composition of photographic varnish must not be subject to become resinous.

Let us now consider the various varnishes which have been proposed in France, in England, and above all, in the United States of America.

Amongst the various substances, resinous and liquid, employed in this kind of manufacture, we may mention,

Copal
Soft copal soluble in alcohol & benzole.
Sandrac
Mastic.
Yellow and white lac.

Melted amber.
Essence turpentine.
Benzole.
Alcohol.
Ether.
Chloroform.

All these substances, mixed in proportions more or less different, produce photographic varnishes.

M. Legray recommended commercial copal varnish, diluted with an equal bulk of benzole; but we have before remarked that liquids which became resinous are not adapted for photographic purposes, while it is well known that turpentine, which enters into the composition of copal varnish, becomes resinous in contact with the air, with the utmost facility; consequently this varnish gives but poor results, for it dries with difficulty, becomes sticky under the solar rays, and rises up in parts, forming veins which become effaced under friction, thus injuring the proofs.

If we dissolve soft or oxidized copal in benzole we obtain a perfectly colourless varnish, the proportions being 40 grains of the former to 1 oz. of the latter. The solution is rapidly effected, and the filtration through paper easy.

If this varnish is poured on the negative, a film is obtained which dries very rapidly—(at the end of a few hours)—and which is very brilliant, but which is subject to become adherent to the paper when the solar rays become powerful. In England this varnish is very much in demand, because it can be used without heat; but in the countries further south, as Italy, Spain, and the interior of France, its employment would be very restricted, because o its becoming softened under the influence o heat.

We come now to the hard varnishes capable of being applied cold. A varnish, the preparation of which we have not hitherto seen indicated, is one composed of amber and benzole, and as its preparation is easy we shall describe it.

Amber is a resinous substance, met with on the shores of the Baltic Sea, and is used fo making beads, mouth-pieces, &c., in the fabrication of which a number of waste fragment are produced, and as these are generally of th best quality, and of moderate price, they are o the kind most suitable to the purpose in view.

The amber is to be first pulverized, and afte having placed it in a closely covered vessel with a small opening in the lid, it is to b heated gradually up to about 570°. A quantity of white vapour becomes disengaged, which i allowed to pass off, and the amber graduall softens, melts and bubbles, when the vessel i to be removed from the fire, and the mas allowed to cool. Amber thus modified is ex tremely soluble in benzole and in chloroform and is to be dissolved in the proportion of from forty to fifty grains to the fluid ounce.

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* This is a very imperfect description of the method formerly recommended by Mr. Burnett for producing uranium pictures, to which we made allusion in our last. Truly the coolness with which *published processes* are claimed as new discoveries is one of the marvels of the present day.—ED.

With benzole a brownish varnish is obtained, but which produces a film on the negative but slightly coloured, and dries after the lapse of a few minutes; it is then very brilliant, so much so, that it is frequently difficult to distinguish the varnished side from the plain glass, and what is also valuable, it does not soften under the action of the sun's rays.

Chloroform may be used as a solvent, but is more costly, and the varnish produced thereby is much more brittle, and liable to injury by rapid changes of temperature. The solution in benzole is, however, highly to be recommended.

The following varnish requires heat in its application:—

Place in a flask

Alcohol at 90°	1 quart.
White stick lac	3 oz.
Picked sandrac	3 drms.

Raise the temperature slightly by plunging the flask into hot water, and in a few minutes the solution is effected, with the exception of a few light filaments of insoluble lac. Filter through bibulous paper, and the light yellowish liquid is fit for use, as follows:—

The glass is to be heated before a fire, or over a spirit lamp, to a temperature of from 100° to 140°. After applying the hand to ascertain that it is not too hot, the film of varnish is to be applied in precisely the same way as is employed to spread the collodion, returning the surplus to the bottle, and the varnish dries with a brilliant surface.

If the glass be made too hot, the varnish dries very rapidly, and forms veins, which, however, do not appear on the paper proof. A few drops of essence of bergamot are sometimes added to give a perfume.

There is one point of the highest importance to be borne in mind, that is, never to attempt with this varnish to give a second coating to the same negative, as by so doing it would be inevitably spoiled.

A similar varnish is used to produce the effect of ground glass with transparent positives, as follows, viz.: alcohol four oz., white stick lac, ninety grains, sandrac sixty grains—dissolve as before. This is to be applied cold, and the glass allowed to dry by being stood on end, resting against the wall.

The Monostereoscope.—We give the following extract from the *Athenæum;* but confess, at the same time, that we put no faith whatever in the correctness of the statements made regarding the optical effects. We do not *say* it is *impossible*, but we *think* a great deal:—"M. Gaudet, a pupil of Daguerre, has made an invention, which, it is said, may possibly supplant the stereoscope. He calls his apparatus the 'Monostereoscope,' because it represents only one subject, and because his pictures can be seen from each point of view, and by several persons at the same time. The optical effect of the monostereoscope is said to be still more natural and life-like than that of the common stereoscope; as the subjects stand out even more in relief, and can also be submitted to microscopic observation."

A WEEK WITH THE CAMERA AMONG THE KENTISH HILLS.

The following paper, by Mr. Travers B. Wire, is that mentioned in No. 12 of our *Journal* in the report of the Blackheath Photographic Society:—

Mr. President and Gentlemen,

Last May, Mr. Ledger and myself, having a day or two to spare, determined to visit Hever, in the hope of obtaining a few views of the old castle there, so rich alike in picturesque beauty and historical reminiscence. We fixed upon Monday, the first of June, as our opening day, and proposed going to Hever by rail from London, *via* Edenbridge. Our plan was to look about us on our arrival; and having determined the best points, to photograph them upon Tuesday and return on Wednesday to London.

But having mentioned our intended trip to Mr. Wood, he expressed a wish to accompany us, to which proposal we, of course, readily acceded.

By his suggestion we altered our original plan, thinking, upon reconsideration of the proposed route, that we might experience considerable difficulty in taking to Edenbridge by rail, and thence to Hever (possibly on our shoulders), our camera, bath, plate-boxes, camera stand, chemicals, and all the *materia photographica;* the successful transmission of which practical operators know to be equivalent to the gaining of half the battle. Visions arising of ourselves toiling along dusty roads, under a June sun, and the weight of our *impedimenta*, soon made us fall in readily with our friend's proposition; which was, that we should drive down instead, and thus obtain a chance of catching a stray view or two upon our road, and would certainly make us very independent.

A dog-cart was considered the most convenient conveyance for photographic purposes, and forthwith procured. We constructed a tent to fit on to the back of the vehicle, so that, were it impossible to obtain a room upon the spot (which, by the way, we always preferred to the confined space and heat of the tent), we should not be altogether non-plussed for want of a second string to our bow.

Monday, the first of June, at last arrived—as lovely a morning as any photographer could wish for. We left Lewisham about seven o'clock, with a full cargo of photographic apparatus, carpet bags, a large stone bottle of water, and some Macintoshes. We had taken the precaution of providing ourselves with the ordnance map of the N.W. corner of Kent, and a pocket compass; which articles we found of the utmost value. Without them, an intimate knowledge of the country and of the relative position of every village is indispensable: the information to be derived from the rustics being of little value, as their topographical knowledge rarely extends to more than a circuit of three or four miles from the places where they are bred.

After about five hours' delightful and amusing "jog-trot" (for we had a remarkably sober old horse, who did not at all see the fun of proceeding faster than a walk), we reached Hever. In the gateway we found a small room, in which was a quantity of old broken furniture. This we speedily removed, and nailing a large yellow curtain, which we had brought with us, over the doorway, we went to work.

At Hever we succeeded in obtaining five 10 × 12, and two 10 × 8 negatives; we then explored the old place, which is interesting from its many historical associations of the time of bluff King Hal.

Here it was that he courted Anne Boleyn; here died Anne of Cleves. In the church is a fine old tomb to the memory of Sir Geoffrey Boleyn, grandfather of Anne.

We found with regret that we were unable to photograph this church, from its being situated on the top of a hill, a weakness prevalent amongst many of the Kentish churches.

(To be continued in our next.)

REVIEW.

The Stereoscopic Magazine, a Gallery of Landscape Scenery, Architecture, Antiquities, and Natural History, accompanied with descriptive articles by writers of eminence.

(Lovell Reeve, 5, Henrietta Street, Covent Garden.)

The first number of this periodical, which appears under the able superintendence of Mr. Glaisher, F.R.S., is before us, and consists of three subjects, viz., Falaise Castle, Normandy, the Hardinge Statue, as exhibited in the court yard of Burlington House, and the river front of the Royal Observatory at Greenwich, each subject being accompanied by an interesting description, but we regret to find that these descriptions are all of them anonymous. The stereographs are well printed, and of an agreeable tone for book illustration, though for the stereoscope itself we find it rather too "cold." The negative from which the Royal Observatory has been printed, is too weak in the sky, which gives all the appearance of the advent of a thunderstorm: but as the subject itself is easily reached, this will probably be remedied in future by the production of another negative from which to take the impressions.

An idea of this kind well carried out, is sure to be one that will be profitable to the publisher, as every one that has a stereoscope (and who has not at the present day?) is always glad of an addition to his collection of slides; but irrespective of the mere gratification of increasing the number of one's specimens, a publication like the present opens the way to the acquisition of a large amount of practical knowledge of subjects otherwise totally beyond the cognizance of many. The applications, both amusing and instructive to which it may be devoted are numerous: for instance, by its aid we might not only visit all the most celebrated monuments of antiquity accompanied by an able *cicerone*, but the interiors of our various manufactories might be laid open to us; the interior arrangements of the Royal Observatory itself would form a pleasing addition. We might have a stereoscopically illustrated "Murray's Hand-book," and thus enjoy a continental trip at the same time that we are proceeding on our way to examine the no less striking beauties of our native land. Again, illustrations of places and subjects of momentary general interest might form an important feature in the plan, such as the scene of any striking event—in fact, the adaptations are so numerous that we should only weary our readers by endeavouring to indicate them.

☞ A stereoscope called the "book" stereoscope is adapted especially for examining the illustrations, but those who possess any of the better form of instruments, such as Scott's, Knight's, Salmon's, and many others, have no need to do more than to make use of that portion of the instrument which carries the lenses, to see them in perfection.

CORRESPONDENCE.

☞ *All* Editorial *Communications,* Books for Review, *&c., should be forwarded to the Editor,* George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

ON THE USE OF BROMIDES IN WAXED PAPER.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have been very much interested with the paper, by Mr. Heisch, at the meeting of the Blackheath Photographic Society, and also what was advanced at the June meeting in Coventry Street, by Messrs. Hardwich, Fenton, yourself, and others, relative to the use of bromides in collodion.

Respecting the use of the bromide of potassium in *collodion* I will offer no remarks, but I am fully persuaded and convinced of its use in iodizing waxed paper, and I have continued gradually to increase the quantity of bromide until it now exceeds that of the iodide, and I am not sure that it will not be an advantage to still further increase it.

The following formula is that which I am now using, and which has enabled me to produce better negatives with *denser and more opaque skies* than any other which I have tried, and I have tried a large number, including those very complicated ones dating some years back, in what may be called the "dark ages" of photography:—

Distilled or good clean rain water, 40 oz.; bromide of potassium, 500 grs.; iodide of potassium, 300 grs.

A few grains of free iodine.

My further manipulation differs so little from that usually followed that I will give it in the briefest way.

Immerse the paper for twelve hours; excite with nitrate of silver, 150 grains; water, five ounces; glacial acetic acid, three drachms.

Expose with a three inch Ross's single lens of fifteen inch focus and three-eighths stop, from five to ten minutes.

Develope with gallic acid, sixteen grains; water, eight ounces, to which has been added two drachms of the following solution—nitrate of silver, thirty grains, water, one ounce, glacial acetic acid, one drachm.

Fix with two ounces of hyposulphite of soda in eight ounces of water.

I cannot recommend the foregoing as a good "keeping" process; not more than forty-eight hours should elapse between exciting and developing, and not more than half that time in warm weather, but within these limits, for beauty of negative, intensity of sky, and uniformity of action, I have not witnessed anything equal to it. If you think proper I will send a few negatives for your inspection.

I cannot close this communication without expressing my regret that photographers, as a body, appear to have deserted their "first love"—the paper process. I admit to the fullest extent the at present unapproachable beauty of the negatives on wet collodion, at the same time I am of opinion that if only a portion of the investigation and research which the collodion has received from our most eminent photographers had been applied to the paper processes, we should, to say the least of it, have been in possession of a much better formula than we can now boast of.—I am, yours, &c.,

BENJ. J. NOWELL.

[Mr. Nowell has sent for our inspection ten negatives, of the size ten inches by eight inches, upon waxed paper, taken as above described. The subjects consist of rural scenes and antique buildings, and we can testify to the extreme beauty of the results. The intensity is perfect, and the subjects well chosen to display the advantages of the process, which is admirably adapted for picturesque delineation of crumbling walls, ancient sculpture, bare trees, thatched buildings, farming utensils, and the like; but at some time we must admit that it is likely to be somewhat less perfect with regard to foliage, as indeed all *paper* negatives must be; the most perfect definition upon glass being not more than equal to the requirements in such subjects as consist principally of trees in leaf, especially where anything approaching to shadow is to be reproduced. Were it not for this fact, very many photographers would be induced to remain faithful to paper negatives, and even as it is, an inspection of Mr. Nowell's productions would enlist a considerable number of recruits into his ranks. However perfect a paper negative may be, it is not equal to the excessive sharpness of detail required in some cases; but is there no middle course between it and glass? Might it not be possible to avail ourselves of the use of those thin transparent sheets of *gelatine* as transparent as glass itself? The most difficult point to overcome would be to render it *insoluble* at some period of the process—possibly bichromate of potash might be applied to this purpose in some way; for instance, soaking the prepared sheets in a solution of it in the light, so as to effect the surfaces of the sheet only. We cannot help thinking that a most hopeful field of research is open in this direction to many an ardent experimental photographer.—Ed.]

A HINT ON COLLODIO-ALBUMEN.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In some recent experiments with albumen as a preservative agent, I have been particularly struck with its power of retarding the action of light on the collodion film, so much so, that if after taking a plate from the bath, you wash it from every trace of free nitrate of silver, and then coat it with a weak solution of albumen, or better still, you may float over it a strong solution, and wash off as directed by Mr. Fothergill (*vide* London *Journal*), you will then have a plate so inactive, that you will not, under ordinary circumstances, be able to get a good negative with less than half-an-hour's exposure in the camera. Now, sir, it appears to me that this effect is due to the altered structure of the film, by the albumen causing it to become less "structural;" and therefore it occurred to my mind, that after allowing the plate to dry, and re-exciting it in the nitrate bath, and again washing it from every trace of free nitrate of silver, I should restore the condition of the film, and thus render it very sensitive. I tried the experiment, and found great sensitiveness and uniformity of action to be the result.

I enclose you two prints. No. 1 is from an ordinary quarter-plate lens, with fifteen seconds' exposure, and No. 2 from a half-plate lens, with thirty-five seconds' exposure on a dull day.

You may re-dip the plate before it is dry if you like, but I think for the sake of the bath it is better to allow it to become dry first.—Yours truly,

Islington, June 26th, 1858. J. RYLEY.

[We believe that the secret of success with Mr. Fothergill's process consists in washing the plates with a *measured quantity* of water, thus in effect leaving a weak but definite surplus of nitrate of silver in the film. We think that Mr. Ryley somewhat overrates the amount of exposure required when a plate is *indefinitely* washed, though it is certainly rather protracted. Mr. Ryley's suggestion appears to us a valuable one, and though we do not quite agree with his explanation of the *rationale* of the process, we strongly recommend a trial of it, as the specimens sent are really good positive impressions upon paper from glass negatives, *not under exposed*, the darker parts of the dress, &c. being all faithfully delineated. Mr. Ryley is an ardent photographer, and readily open to conviction if in error; moreover, he invites discussion and examination of his suggestion, and as we really have cause to think well of his idea, we trust that many will go to work upon it. As nitrate of silver forms an *insoluble compound* with albumen, it is not only almost impossible to wash it away, but this organic compound with the silver salt in connection with the peculiar molecular condition of the collodion film, appears to us as being one that we might rationally expect to give the requisite impetus to the effect of the actinic ray by catalytic action.—Ed.]

HONEY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—The enclosed print is from a negative by your honey process, as per instructions to "Vale Salve:" exposure two-and-a-half minutes at six a.m., five-eighth inch stop midway in portrait combination, with no sunshine; developed with pyrogallic two grains, citric acid one grain, alcohol thirty minims, water one ounce. I am yet in my noviciate, and as this print is unsatisfactory, may I trespass on your kindness to inform me in your next to what I may attribute the cause of failure. I am also troubled with a propensity in the developer to get under the film. My collodion is Hardwich's, iodized two months ago, and now a very dark colour. Can you suggest a remedy?

I am, yours, &c.,

Wolverhampton, YOUNG PHOTO.

June 24th, 1858.

[Your picture, though not a good one does not require so much to make it so as you imagine; the chief failing appears to us to be in tenderness of the sky, which would have borne the amount of exposure you gave without solarisation, had the film of collodion been somewhat *thicker*. Although we can always work with the collodion you mention, we think that a more *gelatinous* film is better adapted for working with honey, we therefore recommend you to try the following, viz.:—Make some collodion with gun *cotton* (not paper), say ether four drachms, alcohol two drachms, pyroxyline five grains, add two drachms of iodizing solution made as follows: ether five drachms, alcohol three drachms, iodide of cadmium four grains, bromide of cadmium one grain. This will form a very gelatinous compound when combined with the collodion above-named, and if mixed in equal proportions with that you are now using, we have no doubt but that you will have a very good material for your purpose. The absence of sun-light is almost fatal to the excellence of such a subject as you have selected; and if we might offer you a hint as to "*point of view*," we should recommend you to take a subject like that now sent, namely, *a mill with low houses, and a straight hedge with a tree or two in the background*, from a point more to the right, so as to catch the houses obliquely, bring the mill into the centre of the field, and include by that measure a small tree, of which we see indications on the left side. The picturesqueness of your subject is almost destroyed in all cases by taking it so as to produce the effect of a mere horizontal line; for stereoscopic effect it is absolutely fatal.—Ed.]

PHOTOGRAPHERS AND THE "SALE OF POISONS" BILL.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As a reader of your *Journal*, and also as an amateur in photography, I hope you will oblige me by calling the notice and attention of photographers and dealers in photographic chemicals throughout

England to a "Bill to restrict and regulate the sale of poisons," introduced by the Earl of Derby in the Lords, and which, as there amended, has reached the Commons.

This Bill, which at present only applies to England, if allowed to pass into law in its present shape, will, I presume, entail endless and needless troubles on amateurs, and as regards dealers in photographic materials, lead to continued expense and trouble; if not, I fear to their not being allowed to sell any chemical such as cyanide of potassium, &c.

I give you the rubric of the Bill, lest its provisions should not be known.

Clause 1. Declares the Act to take effect from and after the 31st December, 1858.

Clause 2. Repeals the Act 14 & 15 Victoria, as regards England.

Clause 3. Defines the word poison to mean any drug or substance referred to or mentioned in Schedule A.

Clause 4. No poison mentioned in Schedule A to be sold to any person unknown to the seller, unless in presence of a witness of full age, who is known to the person selling the poison, and to whom the purchaser is known, and who signs his name and place of abode before the delivery of the poison; and no person shall sell any such poison unless there be produced and delivered to the seller, before sale, a written certificate, signed by a householder, with his name and residence, stating that he knows the person for whose use the poison is required, and that he believes it may be safely given him; and all such certificates shall be carefully preserved by the seller in the order they may be received.

Clause 5. Every person who sells such poison shall, before delivery, enter in a book the following particulars:—Date and sale of delivery; name, surname, and address of purchaser; name and quantity of poison sold; the purpose for which it is required, into which circumstances the seller of poisons is to enquire; such entries in every case signed by seller and purchaser, and witness when required.

Clause 6. No poison shall be sold unless the vessel, box, or bottle be distinctly labelled with the word "poison," and name, surname, and address of person selling.

Clause 7. Arsenic to be mixed with soot or indigo.

Clause 8. After the 30th June, 1859, no person other than a legally qualified medical practitioner or chemist shall sell any poison without a license.

Clause 9. Three examiners to be appointed.

Clause 10. The examiners to sit in London or elsewhere in England to examine persons as to their proficiency in the branches of knowledge requisite to enable them safely to vend poisons; any person satisfying the examiners to be licensed.

Clause 11. Persons carrying on business as *chemists* or *druggists* one year before the commencement of this Act, or of preparing, dispensing, and vending drugs by retail, shall, upon satisfying the examiners of his having for the year aforesaid carried on such business, be entitled, without examination, to such license to vend poison; such license only to be in force for five years.

Clause 12 declares a fee of 10s. payable for each license.

Clause 13 enacts, fees may be reduced by order of council.

Clause 14 declares the gift of poisons to be applicable to sales.

Clause 15. Prescriptions by medical men and wholesale dealings exempted.

Clause 16. Poisons to be dinstinctly labelled and kept apart in the shop or dispensary.

Clause 17. Examiners empowered to enter the shops of druggists, and places where poisons are sold by retail.

Clause 18. Every person offending against the Act, for first offence to pay £5, and second offence £20.

Clause 19 declares the act to extend only to England.

Schedule A to which the act refers:—

Arsenic and its compounds.
Corrosive sublimate.
The poisonous vegetable alkaloids and their salts.
Prussic acid.
Cyanides of potassium.
Essential oil of bitter almonds.
Cantharides.
Aconite and its preparations,
Oxalic acid.
Nux vomica and coculus Indicus.
Laudanum, opium, chloroform, salts of sorrel, tartar emetic.

Now, sir, I ask what will be the effect of this Act passing? I dont know; but if every dealer in corrosive sublimate, cyanide of potassium, and chloroform, and also each amateur in photography, who uses such poison in this art, is, for half-an-ounce less or more, to be obliged each time to go through all the formalities required, certain I am that dealers in chemicals will be less than now, and amateurs in photography sickened and disheartened in following this art, and, consequently, for the future prove a barrier to further experiment and practice. Excuse my anxiety, and believe me,

Your obedient servant,

Glasgow, July 10, 1858. DELTA.

PRINTING DIFFICULTIES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I have just been trying my hand at printing for the first time, and have completely failed, as you will perceive by the enclosed prints, although, on removal from the frame they appeared very good. The process I adopted was the following:—I first washed the proofs on removal from the frame with water, afterwards in ammonia one drachm, water one pint, till they became slightly red; washed again with water, then removed to toning bath, hypo-soda three grains, chloride of gold one grain, dissolve each in two ounces of water—mix; add hydrochloric acid five minims. On removal from the bath I again washed with water five or six minutes, then placed them in fixing solution, hypo-soda one ounce, water four ounces, which destroyed all half-tones, and caused that strange colour and silvery appearance. If you will give me your assistance in the next *Journal*, I shall feel very thankful.

Your svery truly,

F. MANDERS.

P.S.—I have since prepared a toning bath according to directions given in No. 5 of the *Journal*, page 66, which, when first prepared, was clear and colourless, but in a few minutes became quite milky. Is that correct? and, if not, can you tell me the cause?

[The principal fault consists in insufficient ablution after the toning bath; for, as the paper is very highly albumenized, you must bear in mind that the film is very *impenetrable* by aqueous solutions, especially after its having been acted upon by the nitrate of silver, which renders it quite insoluble even in strong ammonia. Try the following:—On removal from pressure frame wash in water one quart, salt one spoonful, for a few minutes, rinse, and tone as before; then wash in very weak soda and water—say water one pint, soda thirty grains; and then immerse in your hyposulphite solution for ten minutes. The milkiness of your toning bath, as described in the postscript, is all right, and will clear by subsidence of the liberated sulphur.—Ed.]

NOVEL APPLICATION OF PHOTOGRAPHY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—An episode occurred the other day in the way of my calling that brought to light the value of photography, and which I think you will agree with me was unique in its way. I was last year sub-contractor for some works in a distant part of the country, and, Scotchman like, I wanted a guarantee from the principal: this I received, and in the course of this spring, not being able to get my money through the expected course, I made application to the principal, and the reply I received was, "Who are you? I never heard of you before?" &c. It is perfectly clear that that style of letter would not be satisfied with the mere assurance that I possessed his guarantee; besides that, I could not send the only evidence I had of his having become liable for the payment in question. It suddenly crossed my mind that a photograph of his letter would bring home the truth to his mind in such a way that would set at rest the matter in dispute. My friend Mr. Keith took a photograph from it, and it is needless to say my object was gained, and I had the pleasure to find my old hobby had been turned to a useful account. I therefore offer this as a hint to others who may be placed under similar circumstances.

Faithfully yours,

Liverpool, 10th July, 1858. J. A. FORREST.

SOLARIZED WHITES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—I again take the liberty of troubling you, because I am sure always to get a remedy for whatever ails me by applying to you. I am using collodion iodized with iodide of potassium; and, if I expose long enough to bring up the shades properly, the whites are all solarized.

Would bromide keep the whites, do you think? If so, in what proportion should I use it? Would bromide of cadmium do to put along with iodide of potassium, or must it be bromide of potassium? What effect has iodide of zinc in collodion?

Would tartaric acid do for the developer, instead of acetic acid, which is so difficult to get good in the country? An answer in the next will add another to the many obligations I am under to you.

Ballybofey, June 18. AN AMATEUR.

[Immerse a slip of silver-foil, or even clean zinc, into your collodion, *until it becomes nearly colourless;* a little bromide of cadmium, say half a grain to each ounce of collodion, may then be added. We do not consider that iodide of zinc is so good as the other iodides, either metallic or alkaline, for photography. Tartaric acid may certainly be employed instead of acetic acid for some purposes in photography, but for negatives we prefer citric acid, especially in hot weather; while, for positives, we fear that the whites would suffer in tone.—Ed.]

ANSWERS TO CORRESPONDENTS.

Windermere.—There is some slight obscurity in your letter: you first say that trees obscure the light on the *west* and a building on the *north*; afterwards, that any amount of light may be obtained on the *south* and *west*—should not the latter be *east?* Although, as a rule, a northern aspect is preferable for an operating room, yet we must bend to circumstances. In your case the sitter had better face the *south*, having blinds on the top, as a matter of course, to be used partially at all times, and completely when requisite; blinds also on the *east* and *south* sides, to be used according to the position of the sun, &c.

John North.—The haziness in your stereographs is due to a want of sufficient *free nitrate of silver*, in other words, your exciting bath for the paper employed (which seems very good) is not strong enough—probably it has been much in use and has become reduced in strength—but at any rate a remedy will be found by an increase in the strength of it. We should advise at least thirty grains *more* nitrate of silver to each ounce of solution. You must bear in mind that the more salt in the paper, the stronger must be your exciting bath; and although a longer time allowed to sensitize the paper remedies an inequality at first, repeated use renders the extra time invalid, as each sheet floated materially weakens the bath. We see no reason to think ill of either collodion, lens, or toning bath. An excellent varnish to be applied to the mounted paper stereographs is sold by Marion, Regent-street; see our review of the turpentine waxed-paper process in the present number. We consider your two elliptical pictures of Bowness Bay very good, the square one good, but rather under exposed; all, however, would be materially improved by a stronger exciting solution for the paper on which they are printed.

E. G. Roovin, Shipley.—1. Mr. Keene, of Leamington, advertises a collodion prepared expressly for Mr. Fothergill's dry process. 2. Stereoscopic prints are coloured in water colours and then varnished with gum water; Marion, of Regent-street, also has a varnish for the purpose. 3. It is impossible to say what was the exact cause of deterioration of your positive bath by once using from the meagre information you give, but doubtless it is owing to some detrimental ingredient in the collodion employed.

J. Burnside.—Mr. Grubb's new lens is not a portrait but a landscape combination, hence your purpose *would not be served thereby*.

A. L., North Wales.—We are obliged for your kind expressions.

Queechy.—To form iodide of silver take any quantity of the nitrate of silver and dissolve it in *distilled* water; dissolve an *equal quantity by weight* of iodide of potassium, also in distilled water; mix the two solutions and a yellowish precipitate will be formed, which may be washed two or three times to free it from the nitrate of potash *formed by the decomposition*.

B. B. R.—Consult our advertisements, we cannot, without uudue favour, recommend any particular maker.

A Constant Reader.—See our reply to "Young Photo."

W. Clarke, J. B——n, and J. N. G., in our next.

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N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."

The

Liverpool & Manchester Photographic Journal.

New Series. No. 15, Vol. II.—AUGUST 1, 1858.

If the editor of *Photographic Notes* estimates highly Mr. Pouncey's printing process in carbon, he has not only a perfect right to do so, but further than this, no one could object to his expressing such estimation in any terms he might think fit; but when that gentleman goes *out of his way* to pour contempt upon all who differ from him in their appreciation of the results of this process, he must not be surprised if such conduct meets with just condemnation.

The following extract from the leader of the last number of *Photographic Notes* will illustrate the spirit of which we complain:—

> But it will ever be remembered as a matter of history, that *the most important discovery that has yet been made in Photography* was offered *in vain* to photographers for ONE SHILLING, and that the first specimens exhibited were condemned by the Photographic Society.
>
> The statistics of our Subscription list afford some curious revelations of character. Two or three "bonnie Scots" have put down their names for a guinea; nor has the Sister Island been backward in furnishing subscribers who have said, "Put me down for ten shillings and *upwards if required.*" The English provinces have also done their part, and the Secretaries of the Societies of Birmingham and Manchester, as well as of Scotland, are on the list. But as we approach the Metropolis the enthusiasm cools down, and *not one* of the members of the defunct Printing Committee, nor of the talkers at meetings of the Photographic Society, whose *ipse dixit* has been received as law for so many years, has helped us in this matter. We deem it right to publish this fact. It is significant. The inevitable conclusion is, that for any important practicable purpose which is to benefit photographers at large, the Photographic Society is useless. Even in the case of Mr. Frederick Scott Archer, the widow, after waiting for more than a year, died without receiving the sum that was liberally subscribed for her through that channel. The time has now arrived for the organization of a NEW PHOTOGRAPHIC SOCIETY. The jealousy and incompetency of the old Society is now patent to all.

Out of his own mouth shall he be judged. It would scarcely be believed, after such a diatribe as the above, that, having become acquainted with Mr. Pouncey's so-called secret, he recommended that gentleman to give up his project of granting licences to practice the process, because it so closely resembles other processes for which patents have been secured (and of which the details are published, being substantially what we have elsewhere indicated in these pages), that he would most probably become involved in litigation. But this is not all: in the same number of his Journal, in an editorial reply to a correspondent, "Photos," page 172, we find the following:

> Mr. Pouncey's process can be applied successfully to the printing of positive portraits upon plain paper, *which are to be re-touched by the artist.* That is its chief use at present, and a very important one it is, &c. &c.

So then, because the managing body of the Photographic Society declines to purchase for £100 "*the most important discovery that has yet been made in photography,*" "*the principal use of which is to print portraits that require re-touching,*" and the ownership of which is so doubtful, that the granting of a license to practise it is deemed so likely to involve the grantor in litigation, that the author of the above quoted description advises the patentee to abstain from so doing, he arrives at the very logical conclusion that the Photographic Society is useless; and accuses the Society (the whole body we presume—not the council only) of jealousy and incompetency.

The statistics of the subscription list are stated to be "significant;" we readily agree to this, but our conclusion differs materially from the one adopted by the writer of the article. We think that the reason why the enthusiasm cools down as we approach the Metropolis, may possibly arise from the fact that *most of the photographers may have unfortunately* SEEN *the specimens*, and consequently not considered that even a shilling would be well laid out in acquiring a knowledge of the mode of their production.

We very much regret that it was impossible to discuss this matter without the introduction of the patentee's name, whom we readily acquit of any undue attempt to force this matter before the public. In this instance he is a sufferer from the mistaken zeal of his advocate; so far as we were concerned, not regarding the process as one likely to be of importance for the reasons we have already given in these columns, we were content to pass it by in silence, and did so until we were taunted with our forbearance, and literally goaded on to take some notice of it.

As regards the Archer fund, we should have imagined that the editor of *Photographic Notes* must have been fully aware that the Photographic Society, as a body, have not the power to take the initiative in raising any sort of subscription, and that, in order to enable it to contribute legally to the fund, it was necessary to hold a special general meeting for the purpose—a proceeding which actually took place.

We have another grave charge against the editor of *Photographic Notes* that we feel it incumbent upon us to bring forward; regarding it as we do a matter of duty to keep our readers as *au fait* at all matters photographic as it is in our power to do. We allude to an attempt in two consecutive numbers of his publication to detract from the merit of Mr. Grubb, in devising the new landscape lens brought forward by the latter, upon the alleged ground that the formula for its production was published in *Photographic Notes* six months or more ago.

In our last we expressed an intention of examining the said formula provided we could procure the number of the publication quoted; but in his last the editor saves us this trouble by himself again publishing it. If all photographers were opticians we might let the subject pass as containing its own refutation, but as there are very few photographers who are acquainted with this science, and still fewer who know *much* about it, we do not think it right to leave a statement so jesuitical as that in question without reply. We may remark, by the way, that in that, as also in former articles, the terms *negative* and *positive*, as applied to lenses by the generality of writers, have been reversed by the editor of *Photographic Notes*, the former being usually employed to designate a *concave* and the latter a *convex* lens; but this is a matter of comparative insignificance, provided the reader comprehends the meaning of the writer. It will, perhaps, be as well to quote the words of the formula said to include Mr. Grubb's lens, with its introductory remarks, and they are as follows:

> Mr. Thomas Grubb, of Dublin, has lately patented a view-lens. In our last number we described the construction of this lens, and observed that the patent would not, in our opinion, hold good, inasmuch as a formula given by us in No. 33 of this Journal for a view-lens, includes the case of Mr. Grubb's lens. This we shall prove in the present article, and then leave the matter in the hands of our readers.
>
> On referring to p. 305, No. 33, of this Journal, it will be seen that, in reply to a correspondent, G. A. M., we give the following formula for a view-lens:—
>
> "The radii of the curves are determined from the following equations:—
>
> "The KNOWN quantities are—the ascertained refractive and dispersive powers of the crown and flint glass,—the radius of curvature of the outer surface of the flint lens,—and the focal length of the combined lens for parallel rays. These are the data. The UNKNOWN quantities are—the radius of curvature of the inner surface which is common to both lenses,—and the radius of curvature of the outer surface of the crown lens. There are consequently six *known* and *two* unknown quantities."
>
> "The equations by which the unknown quantities are determined result from the following relations which exist among the quantities involved:—
>
> "1st.—The reciprocal of the focal length of the combined lens is equal to the algebraic sum of the reciprocals of the focal lengths of the component lenses.
>
> "2nd.—The focal lengths of the component lenses are proportional to the dispersive powers of refractive media.
>
> "3rd.—The reciprocal of the focal length of a lens is equal to the difference between the reciprocals of the radii of the surfaces, multiplied by the decimal part of the refractive index of the medium."

Now the above, divested of all technicalities, amounts to a formula for determining by calculation the requisite curves for rendering a lens *achromatic;* but not one syllable about *spherical* error, the special point of improvement in Mr. Grubb's lens,—which, of course, is made achromatic, or it would be useless for photography. Moreover, every worker of lenses knows well enough that the foci of the component lenses must be in the proportion of the dispersive powers of the kinds of glass employed; so that the statement is about equivalent to one declaring that a book is not new because the same *letters* are employed as those previously used in another book.

We could go further than this, and shew that the terms of the formula do not apply to Mr. Grubb's lens without modification even for achromatism. We could name " a radius of curvature for the outer surface of the flint lens" that could never be made achromatic by means of crown glass at all, if the condition of a meniscus form be adhered to; but we rest our case upon the simple fact, that whereas Mr. Grubb's improvement is one directed against *spherical errors*, the " formula" leaves that point untouched at all.

While on the subject of lenses, we may mention that M. Porro has presented to the French Society a memoir relative to investigations for the construction of photographic lenses, from which we cull the following:—

> The most singular objective that has been hitherto produced—an objective that would have been regarded as impossible to have constructed but for the revelations to which the methods of calculation exposed in the second *mémoire* conduct us—consists of a *panoramic object glass* composed of two flint and one crown glass lenses, which allows of the production of a panoramic view strictly correct for an angle of 125° at one operation, thus including in *three* the entire horizon. In this object glass the flint lenses are of the meniscus form and very thick. In the centre of the apparatus are placed lateral cylinders, for the purpose of furnishing the instrument with a long band of paper, that can be used up entirely without having occasion to open it.

Upon what form of sensitive surface, or hat condition of field this lens is intended to ct, we know not. We have stated all the formation that we have at present upon the ubject. We are not a little puzzled at the tatement relative to there being two *flint* eniscus lenses and one crown (form not uoted). We suspect that meniscus must be misquotation for concave-convex.

The following extract from a note recently eceived from Mr. Burnett, relative to an n article *On the Testing of Glass for Photo-raphic Purposes*, published in our last, is to s very satisfactory. He says,—

> As to your article, beginning at page 174, on oloured glass, &c., I quite agree with you, and *go urther*, having *positively ascertained the fact* by irect experiment, that equalization or due repre-entation of colours may be obtained to a great xtent, and probably even ultimately in perfec-ion, by the use of various coloured glass or other hades.

We have equal satisfaction in finding that ur suggestions have found favour with the ommittee of Liverpool photographers, ap-ointed to investigate the subject of the hangeableness of some kinds of glass in the ower of transmitting the actinic rays, and are iven to understand that they will probably dopt them.

We are glad to perceive, also, that we find avour with our transatlantic cousins, as the ollowing extract from a letter to the pro-rietor of this *Journal* will shew :—

> We shall in future commend the Liverpool *Journal* o American favour. We would, however, add, that t present our photographic community care little or journals, and that your own has been in the ighest favour, as you may be aware from the fact hat our reprints are made up almost entirely from our columns. We know of no other foreign journal hich has any circulation in the United States.

We learn from *Cosmos* that Mr. Oakes, f New York, has recently constructed a ew instrument of observation, called the 'Helypsometer," for the purpose of measuring he altitude of the sun. The apparatus con-ists of two parts—one for registering the eight upon a sensitive film, by means of the olar rays ; the other serving to measure the eight thus registered. The first portion con-ists of a hollow sphere, the equatorial plane f which is maintained in a horizontal posi-ion. On the convex surface is a small hole, nd the concave surface is covered with a ensitive film. The solar rays, passing through he orifice, produce a mark upon the opposite urface, and the distance of this mark from he equatorial plane is measured, in degrees f altitude, by the second part of the ap-aratus.

We would direct attention to a very unob-rusive paragraph in Mr. Burnett's letter in he present number, relative to the use of nitrate of platinum as a toning and preserving agent for paper positives, instead of the chloride of that metal ; and this may be of far more importance than would appear at the first glance.

We published in our last a note from Mr. Forrest, of Liverpool, shewing how photography may be applied to commercial purposes in an unexpected manner. We think it not improbable that the fact mentioned may suggest the idea of its application to *legal* matters.

Since writing the preceding, we have received the *Journal of the Photographic Society*, in which we find a paper by Mr. Sutton, professing to prove that the curvature of the field of delineation of a plano-convex lens, with its plane side towards the object, is a portion of the surface of a sphere, the radius of which equals the radius of curvature of the convex surface of the lens *plus* its focal length. Now this is a decided *mistake*, if the statement be intended to apply to a *photographic* lens with a stop, as we will shew in our next.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

At the monthly meeting of this Society, held at the Chorlton Town Hall, July 14th, 1858, the Vice-President in the chair, a discussion on Mr. Wardley's paper, *On the Waxed Paper Process*, having commenced,

Mr. Wardley argued that the process was very good for bold subjects and for large pictures, where minuteness in every part of the picture was not necessary ; the time of its exposure was its only drawback, being, in his experience, twice as long as M. Taupenot's dry collodio-albumen process. Some members having found it difficult to work, he was willing to meet any of them to give all the experience he had to forward their operations, and counsel them on the process generally.

Mr. Rogerson thought there was great risk of the paper negatives being injured, and the crack in the wax was certain to print a line in the positive.

Mr. Wardley stated that sometimes these cracks could be fastened up by heat, and the line destroyed. No member thought them desirable for stereoscopic pictures where great minuteness is required.

Some Members spoke about the long exposure as an objection, in fact a most serious one.

Mr. Wardley replied, that by a second iodizing of the paper greater sensitiveness was acquired, he considered quite as great as collodio-albumen.

Some specimens of Fothergill's process were shewn ; and after a very interesting meeting, it was resolved:

That as many members as can make it convenient, meet on Monday, the 19th inst., at Mr. Dean's gallery, to arrange the place for a Photographic Pic-nic in connexion with the Society.

After the usual vote of thanks to the Chairman, the meeting adjourned.

FRENCH PHOTOGRAPHIC SOCIETY.

At a meeting of this Society, which was held on the 18th June, M. Regnault, President, in the chair, after balloting for two candidates for admission, who were elected members of the Society, a letter from M. Jules Duboscq was read, stating that he had executed for a young physician, M. Govi (now professor of physics at Florence), about five years ago, a variable diaphragm, similar in principle to that recently patented by M. Maugey; this letter, therefore, confirms the claim of Professor Govi to have been the originator of the apparatus.

MM. Barreswil and Davanne presented to the Society a copy of the second edition of their "Photographic Chemistry," which, although entirely revised and corrected, has its original form preserved. The work is divided into three parts: the first contains the elements of chemistry, explained by examples printed by photography; the second part, photographic processes on glass (including moist albumenized and dry collodion), on paper, on plates, and the manner of preparing them, the mode of employing the various tests and re-agents, and of economising the refuse of the substances employed; the third and last part constitutes a vocabulary, in which is found explained the nature and properties of all the substances and apparatus which the photographer may have occasion to employ. The work is illustrated by numerous cuts.

The President remarked that MM. Barreswil and Davanne had introduced into their work a happy innovation. In order to explain the different photographic operations they have not contented themselves with figuring simply the apparatus, but each operation is illustrated by a design in which the hands of the operator are elegantly represented, and indicate exactly the uses intended to be made of the various instruments. These designs have, moreover, an absolute exactitude, having been engraved from photographs of the objects themselves.

The thanks of the Society were accorded to the donors.

M. Le du de Noailles presented a series of proofs obtained in Tunis, the subjects being Roman ruins and monuments, of which the photographic reproductions were highly interesting, they not having been hitherto portrayed. They were produced under disadvantageous circumstances from excessive heat and almost entire failure of a supply of water.

M. Delahaye presented, in the name of M. Voightlander, two proofs of large dimensions, produced by M. Sewerin, of Dusseldorf, with one of his objectives of a diameter of about five-and-a-half inches, and focus of about thirty-three inches. The proofs are said to present but very little optical error.

M. Godard, of Gènes, presented two pictures obtained by M. Bayard's modification of Taupenot's process.

M. Delahaye, who undertook to bring to the Society, proofs by various modifications of the uranium process, excused himself in consequence of the unusually short time between the present and preceding meetings. He gave, however, several new details relative to the process communicated by M. Haudoy at the last meeting, and of which the special object was to produce the prints more particularly upon the surface of the paper. The process is already employed in the middle of the day to produce portraits. It requires about two minutes exposure in the sun to obtain a copy of an engraving and ten minutes for a portrait. The iron bath should be very weak if the exposure has been correctly timed; if it commences to appear of a grey tone on the paper the strength should not exceed five grains to the ounce of water, and further it should be strongly acid. Under these circumstances the proof developes very well without any kind of fogging if the uranium bath contains from fifty to seventy-five grains of the nitrate to each ounce of water. On removal from the pressure frame the proof is floated for from twenty to thirty seconds upon the ordinary bath of aceto-nitrate of silver, at the end of which time the image should be completely developed and appear of an unpleasant reddish tone; it is then to be removed to the iron bath, where it at first assumes a yellowish tone, afterwards to change to black; it is then to be washed and immersed in a bath of chloride of gold.

M. Delahaye had tried the effect of substituting other metallic proto-salts for those of iron, and had obtained similar results, but with different tints.

M. Paul Perier stated that he had attempted to operate with the process described by M. Haudoy, but without success; the cause being, perhaps, some imperfection in his baths or preparations; he purposed, however, repeating his experiments, and should communicate the result to the Society.

M. Regnault observed that it would be very important that the certainty and value of the process should, at the least, be clearly indicated before the vacation; and, as the July meeting would be the last of the session, he strongly urged those members who possessed any proofs or experience to communicate them to the Society.

M. Gabriel de Rumine made some observations upon the employment of the dry collodionised paper of M. Corbin, which the former found to answer better when floated for development upon the bath of gallic acid, instead of its being immersed therein. He also found that, in waxing the paper subsequently, the operation to be materially facilitated by allowing the paper at first to imbibe a solution consisting of three parts of castor oil in one part of turpentine, and allowing it to dry, afterwards waxing in the ordinary manner, it becomes thereby more perfectly saturated with the wax.

M. Cognacq, of Rochelle, was about to present to the Society a process for preserving sensitized positive paper without alteration. This process does not consist in any particular mode of preparing the paper, but simply in the use of a box so constructed that paper prepared by the ordinary processes can be preserved indefinitely.

M. Cognacq intending to patent his invention, he was informed by the Council of the Society that a description of his apparatus before them would prevent his obtaining the patent right; and that, consequently, in spite of the interest attaching to it, it would be better for him to postpone the description until the next meeting.

M. Girard gave some account of an apparatus constructed by M. Laveine to obviate the necessity for a dark tent. Some alterations in the details being, however, requisite, the explanation by M. Laveine was postponed until the next meeting.*

M. Paul Perier drew attention to a method he had recently recommended of using baths of proto-sulphate of iron for developing, which consist essentially of employing very weak solutions. The employment of such a solution is a very delicate affair; it has, above all others, an evident superiority, but it presents also some inconveniencies, that can only be avoided by pouring the iron solution very carefully over the plate. If the solution be briskly thrown upon it, the nitrate of silver is carried away by the shock from the point of impact, and the developement at this spot is insufficient, producing a large weak patch; if poured on in a line, a corresponding mark will be found upon the negative. To perform the operation properly, it is necessary to bring the glass containing the solution nearly in contact with the film of collodion close to the edge of the glass, and rather allow it to flow over, instead of pouring on the liquid, causing the containing vessel to pass quickly along the edge of the plate, and communicating to the latter a movement so as to cause the liquid to cover it quickly, and without stopping; it is necessary, in a word, to cause the liquid to fall gently and without any shock, but at the same time to cause it to spread with rapidity. This manipulation requires, it is true, a certain amount of skill. As to the strength of the bath, it should be—

Saturated solution of proto-sulphate of iron	2 oz.
Water	25 "
Acetic acid	1 "

M. Delahaye stated that he had employed for the developement of negatives on collodion, *lactate of iron* in small quantities—two to two and a-half grains to an ounce of water developes slowly, the proofs preserving the whites, and being rich in half-tone. Acetate of iron gives the same result. M. Delahaye had communicated this process several years back to several people, amongst others to M. Bertsch.

M. Frank de Villecholes said that he always employed the salts of lead for developing; that he thereby gains great rapidity, obtaining thus, in two or three seconds, portraits of children which he could not do by other processes.

M. Paul Perier described a method of cleansing glass plates, indicated by M. Bayard, with tripoli and dilute nitric acid; and M. Frank de Villecholes stated that he employs instead liquid ammonia and washings of emery, and afterwards water and alcohol.

M. Besson presented to the Society an apparatus which enables the operator to obtain twenty-four negatives of the same object at one operation, the system being furthermore capable of application so as to obtain any number whatever. It consists of an ordinary camera, in which, at a certain distance from the ground glass, are twenty-four lenses, each of which receives the image formed by the anterior objective of the apparatus; each of these lenses being enclosed in a sort of box made of wood, and blackened, in order to prevent the confusion that would otherwise arise upon the ground glass or sensitive plate from the overlapping of the images from the different lenses. The position of each of the lenses is furthermore calculated so that each of the four-and-twenty images obtained upon the plate are perfectly similar.

Accompanying the above, M. Besson sent a negative and a positive proof obtained by the apparatus. It was regarded as useful for producing portraits for the purpose of employing in place of visiting cards, a practice said to be adopted by some people.

Thanks were accorded to M. Besson.

At the instigation of the President, the subject of holding an exhibition in 1859 was discussed, when it was finally decided in the affirmative, to be opened in the month of February, and to admit both native and foreign productions.

The meeting then adjourned.

The following paper from the columns of our New York contemporary, *Humphrey's Journal*, throws out a suggestion that is well worthy the attention and careful investigation of all engaged in the endeavour to improve both the theoretical and practical details of our art:—

THE ELEMENTS FOR A SUCCESSFUL NEGATIVE.

By George Mathiot.

"In studying the directions which have been given from time to time for the production of photographs, we cannot but be struck with the great diversity in the formulæ and the contrariety in the instructions. The proceedings of the photographic societies and the pages of the journals have given us so many combinations of the everlasting 'alcohol,' 'ether,' 'soluble cotton,' 'iodides,' and 'bromides,' that 'a new process' has almost a terror; and yet, with this reluctance to accredit the *new one*, the consciousness of an unsatisfied desire too often tells us that the *right one* is yet wanting.

"The variations in the proportions proposed for making sensitive collodion, and of the strength of the silver bath, are really astounding: and, singularly enough, with this we find each particular combination brought forth by its proposer as the revealment of the great secret of the exact conditions for success. We find the quantity of the sensitizers varying four and even five-fold, and the strength of the silver bath with an equally wide range. Some photographers will prefer a lightly sensitized collodion, and others like a heavily iodized film; and this we do not find to be a matter of mere like or dislike: each will declare that he cannot *work* with this or that formula, or perhaps with any other than some particular one: one will have a collodion which is far superior to all others, while another will declare that that particular collodion is good for nothing at all.

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* From the description given, it appears to resemble closely the camera patented in this country by Newton; in which, by means of an external rod, the plate is dipped into the sensitising and iron developing baths as required.—Ed.

"But it is not only in the hands of different operaters that, with respect to the various formulæ, we find the diversity of opinion and result, but even in the hands of an individual a particular collodion will work well at one time and at others not at all. I have hardly found a single operator who has not occasionally picked up worthless, cast-a-side collodion and, with it, made one of the very best negatives he ever produced; but, strangely, he cannot continue to use that collodion and get such desirable results. But, worse than all, even with our favourite collodion and bath, and in spite of the longest experience and the most dexterous manipulation, and with a choice light, we cannot always secure a good result: sometimes the process will work to admiration for a part of the day, and then suddenly leave off, like a dissipated *employée.* How is this? Are we never to have the matter analyzed? Are we never to have the facts generalized? Must we for ever continue to grope in the dark?

"Then again, with respect to the *light*, we find a diversity of opinion equally as great as with respect to the collodion and bath. Sometimes we see it stated that an intense light is the indispensable to success; then again, the announcement that it was at length found that the whole cause of the trouble lay in working with a bright light. Some operators cannot get light enough, and others are covering up their windows and skylights with curtains. Sometimes we see it announced that the clear sunshine is the only time for getting a good view; and then again, we are advised by all means to choose a dull, misty day if we would obtain a satisfactory landscape. Yet, in the face of all this contradictory advice, we have the best of evidence that equally good negatives have been obtained with every variety of collodion and strength of bath, and with every variation of light.

"In reflecting on this mass of inconsistent advice and apparently contradictory evidence, we must not lose sight of the fact that each process and instruction has been developed in a sincere investigation of fact, and announced in truthfulness. Therefore, we are not at liberty to reject any of the evidence; but the whole must be made to work together if we would unravel the confused web, and find the true key to the conditions for a successful negative. In the course of my experience I have been led to conclude that there are *three proportionals* which must be observed in the production of a good negative—the intensity of the light, the proportion of iodized cotton to the solvents, and the strength of the bath. These are fixed in their proportions; should one of them change, then the other must be changed, to bring back the proportionality.

"Most photographers endeavour to maintain a proportionality between the quantity of iodizing and the strength of the bath. But as yet there is no connection between the strength of the chemical and the intensity of the light, save that it is known that a lightly iodized film with a neutral bath is best for obtaining the deeper shades in the positive process. The idea that length of exposure is equivalent to intensity of light, is almost universal among photographers, and is the rule for conducting every camera operation: hence, the invariable practice to give a longer exposure for every diminution of the light, whether produced by proximity of the object, a small diaphragm, or a dull day. This practice of continually changing the time of the exposure is, I conceive, the prolific source of the woes of photographers, and that it will continue to make the art an *ignis fatuus* until the means are found, either for keeping the brightness of the camera-image uniform, or else of varying the density of the films to suit the changes of the light.

"The beauty of a negative consists in the gradation of the lights and shades; and the extent of the action is required to be such as will enable it to make a print which, after it is toned, shall be of a pure white in the highest lights, and running from thence by insensible gradations to a full black in the deepest shades. If the negative has too little density the high lights will be obscured, and, consequently, the print from it will not only look dingy, but lack boldness and vigour from the want of a sufficient marking of the deepest shades; if the density is too great, the high lights will encroach on the first tones, and the last tones will be wanting, giving the peculiar hideous, staring look peculiar to photographs, and termed, in derision, 'soot and whitewash.' Now, to obtain just the desirable point of action, the intensity of the light must be such that it will produce its maximum of action in a particular time, which, I conceive, is different for every different thickness of the collodion film or strength of the iodizing. The time in which the light should act I am now inclined to consider as that which elapses between the exposure of the film and the commencement of chemical decomposition in it. You always get a good negative—no matter what collodion you use—when the intensity of the light is such that it produces its full photogenic action before the chemical change in the film begins to destroy its impressibility. It will be perceived from this, that I do not consider the change produced by the light to be chemical, that is, so far as it is considered as a *photogenic* action, though it *results* in chemical action. This idea I will express more fully in an article which I shall shortly publish, on the nature of the actinic action.

"The views which I here present, of the connection of the intensity of the light and thickness of the film, have not been jumped at; they have been forced on me by long observation, and adopted only after careful experiment. That there is some foundation for it can be proved by the following experiment, which every photographer can easily perform:—Suppose you have a heavy, creamy film working very dense with the full three-inch aperture of the four-quarter camera in fifteen seconds; now cover up the aperture to three-quarters of an inch; then, if length of exposure is equivalent to intensity, you should get the same density in sixteen times the former exposure, or four minutes; expose the plate for that time and see the result, it will shew you that the density is far inferior; and if you continue to expose the plate, in hope of at length obtaining the density, you will find that you are rapidly losing the gradation of the ights and shades: now, it is not that the colodion has been getting more and more insensitive by getting *dry*, for the plate can be easily kept four minutes and then impressed with an intense light, and a good result obtained. In my investigations for the best method of photographing drawings, manuscripts, &c., I at first thought that I could employ a very small diaphragm to ensure definition and expose longer, to make up for the consequent loss of light; but I found my labour was in vain: by no means could I get sufficient density to print the whites clearly, or even enough action to carry up the density by re-development, except at the loss of having all the dark lines fogged.

"The theory I have here thrown out requires a lightly iodized film for a feeble light, and a heavy creamy film for an intense light. It has already been recommended, and even practised, to use the heavy creamy film for intensely illuminated landscapes; but I have seen no suggestion for graduating the light to the condition of the film; the idea appears to have been that of using a collodion found by experiment to work best with a peculiar kind of illumination. In the choice of collodions with reference to the idea I have given, the preference will be for the slightly iodized opalescent films, for we can always *reduce* the intensity of the light, though we seldom have the ability to increase it. In taking views, where the light is always abundant, the principle can be readily applied: we should regulate the intensity of the light by means of diaphragms to suit the collodion, instead of regulating the time of exposure to suit the light. A difficulty presents itself in the demand for a great many collodions to form the great range of density required in the films; but I think a few will be found sufficient, for every operator knows how to give a plate a more or less dense film by certain manipulations in the coating or flowing.

"If the idea I have given should be found to be correct, it may turn out that our present collodions are unsuited to its full application, and then others more suited to it will be developed in time. But, with our present materials, I am satisfied that much advantage may be obtained by employing them according to that principle. Again, it will require some photographers to more fully master their art, or else be washed away by the rising tide of competition; but it matters not about the *time when* that catastrophe shall overtake the negligent and indolent; for it is the inevitable fate of *every drone* to have his wings wrung off, and then be expelled from the busy hive of industry."

A WEEK WITH THE CAMERA AMONG THE KENTISH HILLS.

By Mr. T. B. Wire.

(Continued from page 180.)

The next morning, June 2, we wheeled out our dog-cart, and fixed up our tent for the first time to take a distant view of the old castle. The shafts of the dog-cart were strapped tightly to the church-yard fence, to keep our vehicle in a horizontal position, it being one of the two-wheeled kind.

A plate was prepared and exposed, but as I was developing it, I was impelled, by the appearance it presented, to sing out that the tent was a complete failure, and that the picture was spoiled, as I fancied that light must have been somehow admitted. This we could hardly understand, as the tent was composed of two thicknesses of yellow calico, with an external covering of black. However, upon dissolving out the iodide, to our astonishment this appearance vanished, and, instead of a spoiled plate, we had a very passable negative; and our tent, of course, rose wonderfully in our estimation. We here ascertained that about two miles off was a little village called Chiddingstone, which we found, as described, a most picturesque place, composed of houses in the half-timbered style. After some little search we found an obliging cobbler, who readily gave us the use of his stall, and we proceeded to work.

Much to our chagrin, upon focussing for the first picture we found a rent in the India-rubber cloth body of the camera, probably made in getting over a hedge at Hever. This accident we thought would seriously impede our proceedings, but a pennyworth of sticking plaster from the grocer's repaired the damage; and there the patch remains to this day, a triumph of "mind over matter." Here we managed to obtain five 12 × 10 views.

In the evening we fraternized with our friends the cobbler and grocer, in order to get from them what information we could respecting the picturesque. They took us to see a fine old oak in the grounds of Captain Strathfield, and a curious old stone, called the Chiding Stone, whence the village has its name. The tradition is, that from this stone the priests or druids used to chide the people for their sins.

The grocer's house, of which we have a view, is a glorious old place. He kindly shewed us his parlour, which is wainscotted with oak, black with age. He was rather a superior man, with a taste for art, and a subscriber to the *Art Union*, from which he had been fortunate enough to obtain a prize. From him we got some information respecting Brambletye House, which we determined to visit on the next day, especially as Mr. Ledger wished to return to town in the evening. Another inducement for us to visit Brambletye was its proximity to East Grinstead, from which station we availed ourselves of the telegraph to procure from Mr. Thomas more collodion.

Of the Chiding Stone we could not get a view without much difficulty. With the oak before referred to we were equally unfortunate, as the weather, when we reached it, was very unfavourable. But by the time we reached Brambletye House a fresh breeze had sprung up, the rain clouds had passed, and the sun was shining. After having stabled our steed in an empty stall near the ruins, and found him some fodder, we went on an exploring expedition, and soon found, as at Hever, a dark room ready to our hands—an old cellar under one of the towers, with a doorway to it leading into the fields. Over this our yellow curtain was soon nailed, and we possessed as good an operating room as any one can desire. Having accidentally left our stone water-bottle at Chiddingstone, we borrowed a pail from the farmer and set to work.

Our task here was enlivened by the presence of a couple of ladies, who took great interest in our proceedings, and persisted in appearing in all the views, which, by the way, they did their utmost to spoil by constantly moving. Here we succeeded in getting four views; the grass at the time, as you will see, being unfavourably long for the practice of photography. We now returned to East Grinstead, and visited Sackville College, founded by the Earl of Dorset in 1616, of which we all heard so much a short time since. We went to the station, and found that our collodion had arrived, and bidding adieu to Mr. Ledger, who returned to London with a precious charge of twelve negatives, Mr. Wood and myself returned to the town, and borrowed from a chemist measures with which to iodize part of our collodion. The evening being fine we drove over to Edenbridge; for we intended to follow the valley of the Darenth up from Sevenoaks, and thought it advisable to lose no time.

On our road to Edenbridge we passed Gabriels, which we visited in the morning. Here we had again to use our tent, and this time no fault could be found with it.

Our road hence to Brasted, on the Thursday forenoon, was a terrible pull: the hills were such as we did not expect to find so near home; but the views which we had from time to time were truly magnificent. Often, whilst toiling up these steep sandy lanes, did we stop the horse and throw ourselves down on the grass which bordered them, and enjoy the prospect. Truly loath were we to rise again; however, by dint of much self-denial (for the weather was exceedingly hot, and the heather exceedingly soft), we reached Brasted, where we took two views—one of the church, another of the entrance to the tower, through a curious arched doorway formed in the buttresses. This, I am told, is, with one exception, the only specimen of the kind extant in this county.

(To be continued in our next.)

PROOFS BY NITRATE OF URANIUM.

The following is from *Cosmos*, of 15th July:—

We have received from M. Godefroy, professor of physics at the Lyceum of Chateauroux, the following letter, which we hasten to publish:—

In trying to obtain positive proofs by M. Nièpce's process, I have discovered a method of proceeding which shortens materially the time of exposure. This modification appears to me so simple, that I have no doubt of seeing it proposed by several persons at once. However, as I have not seen it indicated in the latter numbers of your interesting publication, I take the liberty of pointing it out to you. I do not send any proofs, because it is so extremely easy for anyone to obtain the results that I announce, that I do not fear any contradiction.

PREPARATION OF PAPER.

Float a sheet of paper upon a bath containing both nitrate of uranium and nitrate of silver. The sensibility increases in proportion with the amount of nitrate of uranium. A convenient formula is—

Water	3½ ozs.
Nitrate of silver	120 grains.
Nitrate of uranium	2 ozs.

The paper is to be allowed to remain for two or three minutes, and then dried. It may be exposed either in a camera or under a negative, and the impression is to be developed by immersion in the following bath, viz.:—

Water	1 oz.
Protosulphate of iron	40 grains.
Tartaric acid	20 „
Sulphuric acid	5 minims.

The image is rapidly developed, and can be fixed by soaking in rain water.

RESULTS.

1st. *Exposure under a Negative.*—In a well-lighted room, with diffused light, at about a yard and a quarter from the window. No. 1. Five seconds' exposure; the image perfectly visible, and of a greyish black tone. No. 2. Ten seconds' exposure; image vigorous; tone almost black. No. 4. Fifteen to twenty seconds of exposure; the image very strong; tint that of an engraving.

2nd. *With the light from clouds.*—Thirty seconds' exposure; the tint of the paper changed in the parts affected by light; the image is visible in the camera; on the iron bath an uniform tint is in general obtained.

3rd. *With sunshine.*—The action is much more rapid; at the end of a few seconds the tint changes, and various tones can be produced by variations of the process.

4th. *Before a small sized moderator lamp.*—If the pressure frame touches the glass shade of the lamp, ten minutes' exposure will produce the tint No. 2; but if the frame be withdrawn to a distance of about twenty inches from the lamp, an hour's exposure will be required to produce the same effect.

EXPOSURE IN THE CAMERA.

I operate with a quarter plate apparatus of M. Ch. Chevalier's before old fashioned red roofs lit by the sun's rays. With three minutes' exposure the image has the tint No. 1, but by prolonging the exposure deeper and deeper tones are obtained. In dull weather, with rain falling part of the time, in an exposure of one hour deep tones were obtained.

If I do not deceive myself, this paper is destined to supersede the ordinary dry papers, and to put dry collodion in jeopardy. I have repeated with my paper the following experiment of M. Nièpce: I open a book, and leave it for three hours exposed to a strong light; I place in it a sheet of prepared paper, shut the book, and at the termination of three hours obtain by the iron bath a sharp negative of the impression. This experiment requires a very strong bath, but it never fails.

Should my weak attempts be interesting to you, I can give you, in another letter, the theory of my process. I have to visit Paris in the middle of August, and if you have the goodness to spare me a few moments, I can communicate to you a simple process for preserving the chemical intensity of the luminous rays—a process which I hope will be of great use to photographers.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor,* George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

CORRESPONDENCE.

ON FOCUSSING, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I have been making a tour with a stereoscopic camera, and on my return to London, have shewn the negatives I have taken to a photographic friend. As I have uniformly used a diaphragm, the aperture of which is one-eighth of an inch, he has expressed the opinion that my pictures are slightly out of focus, although I must say I do not perceive it. He contends that it is impossible to focus accurately with an eighth of an inch stop, and that the proper mode of proceeding when so small an aperture is used, is first to ascertain the focus with one of half or three quarters of an inch, the reason being that the smallest sized stop does not admit light enough to enable the photographer to see whether the focus is exact or not. Now, Sir, I should much like to be favoured with your opinion on this subject, as it appears to me a very important one.

If the above *dictum* be true, then a new difficulty is thrown in the way of every amateur who wishes to use the smallest stop, either in the glare of sunlight, or when he wishes to photograph distant scenery. Besides, I have always understood that the focal length of the lens itself is affected by the aperture of the diaphragm used. If so, surely it is contrary to principle to ascertain the focus on the ground glass with a stop of large aperture, and then change it for one of small aperture, which would inevitably have the effect of deranging the focus already obtained.

If you would settle this point in the next number of your *Journal*, I should be very much obliged to you. Yours very respectfully,

AN AMATEUR.

P.S.—I may add that I use two lenses, a single and a double combination. The latter has the diaphragm between the front and back glasses, but the principle involved in either case seems to be the same.

[There is no difficulty in focussing correctly with an aperture of only one-eighth of an inch, provided that the focal length of the lens employed does not exceed five or six inches. When the operator finds a difficulty in determining whether his lens is adjusted to the proper focus or not, it is an indication that the aperture employed is *too small*, but if he has no reasonable doubt about the point of adjustment which produces the sharpest picture, he may be sure that this is not the case. When the difficulty does arise it is not so much owing to the *deficiency of light* to see by, as from the very fact that makes a small aperture of so much use in delineating landscapes, &c. with great difference of distance between the fore and back ground of the picture, viz., that the smallness of the angle of the pencil of light transmitted, permits of more variation from the point where the *circle of least confusion* (or, in other words, the focus) is situated, without materially injuring the definition, than when a large angular pencil of rays is transmitted. The focal length of a lens is *slightly* different when *great* variations are made in the apertures employed, but if the picture produced be sharp with a large aperture, it will be sure to be so without re-adjustment with a smaller one; the converse of this, however, does not hold good. With a double combination lens, you can always afford to use a larger aperture even for the same subject than with a single combination of ordinary construction, owing to the former being less affected by "spherical aberration." We have an article partly written upon this very subject, which will shortly appear.—Ed.]

COLOURING COLLODION POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I am but a new subscriber, and seeing how kindly you answer questions to different correspondents, make bold to ask if you, or any correspondent, would tell me how to get the powder colours to adhere to any depth. I have seen an advertisement, applied for and received directions, which I can make nothing of.—I am, Sir, yours truly,

R. C. GORENS.

[We have never attempted to colour a photograph, consequently cannot speak from actual experience. We have, however, seen many portraits very well tinted with the powder colours, and we believe this is effected by what artists term "stippling" upon a varnish that is *not absolutely and thoroughly dry*, though very nearly so. We are not perfectly sure of success by your using the following, but we should imagine that a useful varnish for this purpose might be made by a mixture of one part mastic varnish and two of turpentine. Although this dries tolerably soon, it always remains slightly "tacky."—Ed.]

The following letter, bearing date 23rd March, in the present year, and containing matter of much interest, was received from Mr. Burnett, simultaneously with his paper recently published, but owing to the heavy press of matter at the time, has been necessarily held over until now :—

REMARKS ON M. NIEPCE DE ST. VICTOR'S THEORY OF A NEW ACTION OF LIGHT, WITH SPECULATIONS UPON THE PROBABLE INTERCHANGE OF THE FORCES OF HEAT, LIGHT, AND ACTINISM.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I send you a paper containing, among other matters, observations and remarks on certain photographic and actinographic phenomena allied to the subject of M. Nièpce's late paper. It is only part of the letter promised to your able predecessor in the editorship some months ago, but kept back by my bad health and inability to write; and even now I have been obliged to send it in the rough, and do so only because I find by the number of the *London Photographic Journal* which I have just received, that M. Nièpce has hit on some of the very same facts which you will find mentioned in my paper (connected with absorption and re-radiation of the actinic rays), and is altogether getting forward so fast, that the interest of my paper might probably be much damaged by further delay. But M. Nièpce has also it seems been going backwards as well as forwards, his uranic processes with silver and with gold and gold-toning bath being nothing more than re-publication of my uranic process described in March, 1855, communicated in a paper read to the Chemical Section of the British Association in the same year, and again read before the Scottish Photographic Society, in February, published in the *Photographic Notes*, of March 15th, 1857, and copied thence into the *Liverpool and Manchester Photographic Journal*. Specimens, also, of these processes prepared by myself, though no photographer, having been shewn at both readings, as well as at the public exhibitions of our society, and on other occasions public and private.

Mr. Crookes had probably either never observed my paper or else forgotten, amid the multiplicity of his editorial avocations, that the application of uranium to photography had been before suggested, otherwise he would not, of course, have mentioned the discovery of its application by M. Nièpce as an entire novelty, as he has done.

I cannot, of course, for a moment imagine that M. Nièpce would have felt otherwise than much obliged to any one who would have lessened the unpleasantness to himself of the ultimate discovery that he was bringing before the public as an important novelty of his own, that which had been long before given to it by another, by simply calling his attention to the facts before his claims had been more widely circulated, and more particularly as the loss of the one or two uranic processes could be of no material importance to M. Nièpce, among the multitude of new and useful processes, with all sorts of substances, with which he has inundated us, and more especially as we are told by him that such a simple and inexpensive substance as *tartaric acid* is capable of replacing the uranium salts, meaning, of course, with something like equal practical advantage, a discovery to which I can certainly lay no claim.

I must not, however, forget that there are, after all, two novelties in the uranium processes suggested by M. Nièpce. The first of these being the introduction of a mercurial toning bath, instead of the gold bath recommended by me, but which M. Nièpce cannot, however, venture to recommend in preference to it; and the second, the use of pure water alone for fixing, while I, having tried and been more or less successful with nitrate, hydrochlorate, and other salts of ammonia, have recommended ammonia or ammonia salts; a very small quantity of the former in the water I find to be (except in the case of albumenized prints, which are not so readily fixed) quite sufficient. As to the comparative advantages, the expense of the ammonia wanted is very small indeed, and unless we use distilled, or rain water which contains ammonia, I cannot see that M. Nièpce's recommendation is at all a good one. If even we do use distilled water I confess that, in spite of my own success so far with it, I should be a little afraid of ultimate discoloration from chloride, &c., existing in our papers, which are not generally prepared with distilled water; and M. Nièpce can hardly object to ammonia as likely to injure the prints after what he tells us of their indestructibility.

As to the analogies and *rationale* of the uranic processes, should the assertions of M. Nièpce relative to the high sensitiveness of *tartaric acid* and its allies be confirmed, he will certainly have effected an entire revolution in the science, as well as in the practice of photography; but pending the confirmation of such discoveries, (which I can certainly hardly anticipate, judging from the results of my own old experiments, made, not with tartaric, but with oxalic acid, also with the bi-tartrates and binoxolates, as well as with the salts of quinine, cin-chonine, morphine, &c.), I take the liberty to demur *in toto* to M. Nièpce's classification and analogies, that is, if held out as an attempt to class substances according to their *more essential*, and not according to their *less essential* characteristics. The analogies of the uranic processes are thus (pending such confirmation), neither with the plain papers, nor yet with the tartaric papers of M. Nièpce; but, as I pointed out in my paper of 1855, markedly with the old ferric processes of Sir John Herschel and Mr. Hunt. It is difficult to imagine M. Nièpce to have been ignorant of the phenomena and nature of these latter processes, described as they are in every treatise on photography which aspires to be more than a mere manual of the science; yet strange as such a supposition is, it must represent the fact, for had M. Nièpce not been ignorant of those processes, the remarkable correspondence of the developements both with silver and with gold, of the two kinds of paper, must at once (even without the known constituted analogy of the two classes of salts) have suggested to him that de-oxidation, which plays so important a part in the phenomena of ferric papers, was likely to be also present and causally influential in the very closely resembling phenomena of uranic papers. The slightest suspicion of what was so easily to be tested, would, as a matter of course, have prevented his resting satisfied where he was, or giving out as an important discovery the mere barren negation, that it was "not to fluorescence or phosphorescence alone that the uranic and tartaric papers owed their sensibility, or possessed the power of *somehow* saturating themselves with light."

But even making all allowances for his evident want of familiarity with the ferric processes and their phenomena, it appears to me that M. Nièpce's own recorded observations as to the "tartaric acid" papers *radiating* more freely, while the uranic papers *reduced* more readily," might have prevented such an unhesitating causal association of the two papers. I confess myself altogether at a loss to understand upon what principle M. Nièpce has rejected all consideration of *chemical* change as an influence possibly at work; though evidently unacquainted with the ferric papers, he can hardly be supposed unaware that "light" has occasionally the power of inducing chemical change between hydrogen and chlorine for example, and that without developement on the silver salts and the ordinary silver papers, when long enough exposed; but even putting the latter well-known case out of the question, it is difficult indeed to see upon what principle he should so studiously shut his eyes to the *possibility* of chemical change before developement, when the developement itself is, of course, admitted to be a chemical change.

As to the permanence of the uranic prints, M. Nièpce cannot yet at all events say more than I said years ago, while I can add that, though I gave away most of mine, I have yet remaining specimens of early in 1855 (both developed with plain nitrate of silver, and with the assistance of protosulphate of iron bath) unchanged, even though subjected to the gold toning bath, which I have recommended as a *protection* even more than for its *toning*. As regards the keeping property of the sensitized paper, I have used it when *at least two years old*, and have some now of from one and a-half to two years old.

By the way, in using *platinum* for toning, the nitrate or ammonio-nitrate are the salts I recommend, and *not* the bichloride, and this observation applies to ordinary silver prints also. My albumenized prints mostly went wrong from insufficient washing.

While calling attention to the fact that in his uranic developement process M. Nièpce has given us no novelty, except it may be in the added mercurial bath, and in the shade of doubt which he would hold up between us and the little we did positively know touching the *rationale;* and while I cannot help observing, at the same time, that his developement experiments on various substances detailed in his last paper seem to proceed too much on the principle of trying all sorts of substances at random, and then, without any reference either *before* or *after* the experiment to their well-ascertained *chemical* relations or composition, putting down the results at once as due to some *new* action of light, the distinctiveness of which, from all hitherto known actions of light (*e.g.* from the action on silver salts?), seems to consist in its being "not only to phosphorescence or fluorescence alone," I must at the same time admit that in other parts of M. Nièpce's papers there is much that is interesting and true. I allude particularly to his experiments on the storing up of light, which were particularly interesting to me as directly *experimental* illustrations of that which I had *deduced* by analogy from natural phenomena, viz., the absorptive, retentive, and re-radiative power by air of actinism; and which was to be expected from what we already know relative to heat and light. I had awarded an important place to his power in my attempts to account for certain ordinary climetic differences, as well as differences in our own, and between our own and other photographic climates, hitherto unaccounted for.

My attention was called to the phenomena of actinism, absorption, and re-radiation partly by the experiments of M. Nièpce and Mr. Hunt, as recorded in the invaluable "Researches" of the latter, partly by phenomena first accidentally produced during my early experiments with the uranic paper, and partly by a desire to trace how far the different known ray powers are to be considered as regulated by the same, by analogous, or by differing laws in their relations to bodies. To whatever class of ray-powers, some of the phenomena produced by those bodies which have *not* been recently exposed to sunlight, may be attributable to the term as implying an analogy with the well-known phenomena in the case of heat, can not be appropriately applied to an absorption which admits of a free re-radiation as soon as the pressure is withdrawn. In the cases, therefore, of the developement of the images on my uranic paper, and other papers which had been placed in contact with previously actinised printing, &c., in the dark; the analogy is therefore clearly not with latency, but with the ordinary re-radiable absorption of heat. But the analogy with heat latency is *distinctly* to be found in the other class of absorptions recognised in the ozone productions by Messrs. Bunsen and Roscoe, and is probably in all cases the prelude to the so called "chemical action of light." We have now separate instances of what may be fairly regarded as latency of heat and actinism, and by combustion we have latency proved of these together with light, if we consider them as *liberated from confinement,* and not originally produced. Friction, concussion, and compression, if they do not bring into being, clearly *liberate* both latent heat and light, and reasoning by analogy, in all probability actinism also. Heat is now known to be disengaged by motion of even liquids, and this, with the disengagement of it by compression of gases, renders it probable that it, and probably enough also "actinism," may be disengaged during their motion. As to the mutual convertibilities or modificabilities (?) of different ray-powers there is much room for investigation, *e.g.*, it may be that black substances owe occasionally some part of their heat, when exposed to sunshine, to such actions in one direction. This might, perhaps, be considered with reference to "Mr. Hunt's Thermography," and in the impressions which I have got from newspapers on sensitive surface, it must be carefully considered whether the observed non-radiation of *photographic* influence from the black letters may not possibly be owing to change effected in the other direction of absorbed rays, rather than an absence of absorption, or to any power of annihilation or extinction possessed by such black substances.

The light given off by actinic bodies after their being heated might be also connected with a similar conversion in an opposite direction, while when light itself has been the exciting cause, there is no change required to be supposed, but simply absorption and re-radiation.

If we hold the wave theory, it is, of course, a subject for consideration whether such changes (supposing them to be proved) are to be considered as produced by mutual *conversion* of what is now considered as distinct classes of ray-powers, or how far, by the mere elevation or depression of wave-powers, but of different undulating form, accompanying the others, whose characteristic action is only developed at higher or lower velocity, as the case may be.

I must conclude, but will be happy, if you should care about it, to give you further particulars or explanations, both as regards my theoretic ideas, and as to my uranium developement processes, particularly with respect to toning baths, as well as two short notes of a paper read lately before our Botanic Society here, proposing, among other matters, the use of polarised light in microscopic photography, and the formation of a Botanical or general Natural History Photographic Society, say on the model of the Royal Society, or of the Architectural Photographic Society lately organised. I have long been anxious for the formation of such a Society; there seem no great difficulties, and I would augur highly of its usefulness. I have also some new contrivances (left out in my paper as sent to you) connected with photographic printing, to bring out.

I remain, Sir, your obedient servant,

Edinburgh. C. J. BURNETT.

NEUTRAL BATH.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—The enclosed is an extract from a private letter from my brother, who is a successful manipulator in the colony of Victoria. It was sent without any idea of being made public, but thinking it a communication of some interest, I send it to you to do with it as you think proper.—Yours most respectfully, J. N. G.

Stoke Newington, 5th July, 1857.

"My attention was drawn to an apparently neutral nitrate of silver yielding an acid bath. I went on testing most carefully, found it was produced in *forming the iodide of silver;* in doing this the silver is precipitated, consequently the other combinations, the oxygen, and the nitric acid, are set free; hence the acid bath. I then found that by pouring off the supernatant liquid, and well washing the iodide, I entirely removed all the acid, and thus made my bath perfectly neutral. I washed the iodide thus—put it into a large glass measure, filled it up with rain water, stirred well, let it settle, poured off the water, repeated this many times, the last two or three times using distilled water. This plan answers very well, or you may place it in filtering paper in a large funnel and pour a large quantity of water through, lastly distilled; but the former is the better plan I think. It is very strange that this, which is so apparent, and which you would think would at once occur to a *chemist,* has never been noticed in any book that I have seen. The want of knowing this has cost me many pounds in baths that I have abandoned, and will, I trust, save me many now. You will find proceeding thus that the bath is absolutely neutral (the silver being so), and whilst you can get good pictures thus, yet they are a little wanting in brilliancy, to get which result add glacial acid very sparingly, one drop to a two ounce silver bath. I have been experimenting with the nitrate bath off and on for nearly two years; have tried all the different suggestions and recommendations, and do think I have hit upon it at last." "J. G."

Sandhurst, Victoria, 13th April, 1858.

[It is always with pleasure that we hear of the doings of our colonial brethren, and we insert this extract as much for the benefit of others situated like the writer as for any other cause. It is evident from the perusal of the above that the iodide of silver alluded to is that precipitated from the solution of nitrate of that salt, by means of *tincture of iodine* instead of with iodide of potassium as is usual here. Colonists are, however, obliged often to work, not how they will but how they can, and as there are many who are merely imitators (of necessity), and have not the wit of our correspondent, the hint given may be found useful to them.—Ed.]

PRACTICAL DETAILS FOR WORKING WITH MR. FOTHERGILL'S NEW DRY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As I am receiving numerous daily applications for information respecting the beautiful new dry process, for the discovery of which photographers are deeply indebted to T. Fothergill, Esq., and for the successful application and introduction of it to J. Pritchard, Esq., a process that appears to possess *all* requisites, and far superior to any other hitherto introduced, both in *ease* of *manipulation* and beauty of result, combining good keeping qualities with great sensitiveness, and producing pictures with fine *half* tones, and in every respect equal to the best obtained by the damp process, I send, for the information of your numerous readers, the following detailed instructions, which, when strictly followed, have in every instance given the most satisfactory results. They are the result of a series of experiments undertaken to find out and obviate the cause of the failures to which many who first tried the process were liable, and do not differ in principle but in detail—substituting a definite for a rather indefinite mode of manipulating—from those in Mr. Fothergill's original communication to *The Times* and *London Photographic Journal*; and Mr. Pritchard's, under the signature of "J. P.," in the same journal, May 21st; and your own of prior date, I think May 1st.

The *essentials* are a *suitable collodion*, *neutral bath*, and proper amount of washing. Prepare a bath thirty-five grains to the ounce of perfectly dry and *neutral* pure nitrate of silver, and saturate with iodide in the usual way. Coat the plate, which should be as *clean* as for the damp process, with collodion, and place in the bath; when it has been in about half a minute move it up and down, remove; as soon as the bath runs off quite smoothly, place on a levelling or other suitable stand, and pour lightly on at one corner *four drachms only* for stereoscopic size plate (for larger plates an additional quantity in proportion to their size) of filtered or distilled water; cause this to flow evenly all over the plate, backwards and forwards, by slightly inclining it by means of a stand, *not* touching the plate for the purpose until all greasiness of appearance is removed, this requires from fifteen to twenty seconds; empty the water off and pour on sufficient prepared albumen (white of egg ten ounces, distilled water six ounces, strong liquor of ammonia eighty minims, agitate into a froth, and strain for use) to coat it, let it run from corner to corner several times, pour it off, place the plate in a dish containing, for stereoscopic plate, two or three ounce of water, quantity immaterial so that it is not less than two ounces. Wash well for about half a minute by moving the dish so that the water will flow backwards and forwards over the plate; empty out the water and repeat the washing with a second quantity; take it out and place on end on several thicknesses of blotting paper, free from dust, in a chemically dark place to dry. The above plan possesses not only the advantage of giving an uniform result from the proper measured quantity of water being used, (three drachms render the plate more sensitive than four, and two still more so, but liable, from the concentration of silver solution, on which sensitiveness depends, to produce markings; the four drachms were found to answer best for washing off,) but also from rendering it unnecessary to handle the plate much, a great desideratum, for if any of the bath from the fingers comes in contact with the plate when albumen is on, or *vice versa*, stains will be the result. The writer recommends that one hand, with a glove on, say the right, should be used for taking the plate out of the bath and emptying of water, and the left for pouring off albumen, putting the plate in dish, &c. The water should not be allowed to fall with force on the plate, particularly in the first washing, or *non*-sensitive patches will be the result.

The exposure required with a stereoscopic lens, and small stop, is from thirty seconds to about one minute and a-quarter. Before developing moisten the surface of the plate with distilled water. Develope with pyrogallic acid one grain, glacial acetic acid twenty minims, alcohol ten minims, distilled water one ounce, add to each drachm one or two drops of silver bath; continue developement until the negative is sufficiently intense, changing developer when discoloured, and increasing quantity of bath if required. The time required for developing when the plate is properly prepared and exposed is from three to five or ten minutes, but excellent pictures are sometimes obtained even when a much longer developement has been required.

Fix with hyposulphite of soda, four ounces to twelve or sixteen ounces of water. Time may be economised in developing by placing say, six stereoscopic plates in a dish fourteen by ten inches, and pouring sufficient solution to cover them and developing all together; or a shelf may be suspended on cords from the ceiling, which can be levelled by altering their position, place on it pieces of wood quite level and rather smaller than the width of plate, put the plates on these and pour on them the developer; by giving a gentle motion to the shelf in any direction, the solution can be kept in motion and several plates developed at one time.—Yours faithfully,

Leamington, July 21, 1858. ALFRED KEENE.

MR. FOTHERGILL'S DRY PROCESS.

(From *The Times*, Tuesday 13th July, 1858.

PHOTOGRAPHY.

To the Editor of The Times.

Sir,—As you have already conferred a great boon on the photographic public by publishing in *The Times* the beautiful process discovered by Mr. Fothergill for preserving the sensitiveness of collodion plates, perhaps you will also, for the benefit of those who are anxious to know how it answers in other hands, publish a few facts in recommendation of it.

In the beginning of June I prepared a large number of plates 10 by 8, transported them two hundred miles, exposed them in the hot weather during the latter part of the month, and developed them at home this week (five weeks after preparation). Out of forty-one plates exposed I have thirty-seven first-class negatives; the few failures were owing to accidents of exposure, and not at all to the process. This, I think will be admitted, was a fair trial, and speaks well for its keeping properties, while the quality of the negatives equal any I have seen taken on fresh collodion—far surpassing in softness and delicacy those taken by the collodio-albumen process.

The thanks of all who take an interest in this beautiful art are due to Mr. Fothergill for his valuable communication, for, after trying all the methods which have been published, I have no hesitation in pronouncing this in every respect superior to them all. I may just remark that the chief points to be attended to in the manipulation are an uniform collodion film, thoroughly washing off the albumen, and allowing the plates to become quite dry before storing away in the dark box.

If these remarks should induce amateurs who are perplexed as to which of the many keeping processes to adopt, or those who have been, like myself, so repeatedly annoyed by the numerous failures attending most of those previously published, to give this process a trial, my object for thus trespassing on your valuable space will be achieved.

I have the honour to be, yours respectfully

Bank, Nottingham, July 10. S. BOURNE

WHITE SPOTS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—The water I use for washing portraits after leveloping, is impregnated with lime (it is rain vater, and the roofs of the houses are lime-whited), ind I observe minute specks of white, when dry. Jan you inform me if this water will have a deleerious effect on the photograph? if so, can you inorm me if I can get rid of the presence of the lime y precipitation or otherwise? Yours truly,

July 7, 1858. W. CLARKE.

[The best remedy we know is to *boil* the water vell and to allow it to stand to precipitate the ime.—Ed.]

ACID BATHS AND INSENSITIVE COLLODION.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—(1.) Please say in your next the remedy for loss of sensitiveness. The exposure takes one minute to seventy seconds in sunshine. I have a good collodion, and have tried two different developers, and without success. I think the bath must be in fault. With the same collodion I have taken portraits in sixteen seconds. If the bath is too acid, what is the most simple remedy, not using carbonate of soda?

(2.) It is much to be regretted that so many new modes of developing negatives are forgotten, and no further notice taken of them after they are mentioned. To my knowledge the nitrate of lead and gallic acid developer, mentioned by the French Society, has never been mentioned again in your *Journal*. What is the use of all these new-fangled schemes if they are not properly tried by competent persons? They not only waste a great deal of the amateur's money, but above all his patience, and when he loses that, he loses all his other virtues.

(3.) Please say at the same time how to make collodion very sensitive, so that a portrait of a dog can be taken. Yours respectfully,

J. B———N.

Bradford, 23*rd June*, 1858.

[1. Most probably your bath is too acid; if you do not like to use carbonate of soda to neutralize it, you may do it with the oxide or the carbonate of silver; but as the former is to some extent soluble in solution of the nitrate, an excess of it may shew an alkaline reaction with test paper. 2. It does not follow that because you see no further notice of what has once appeared in the *Journal* that it is of necessity either "useless" or "forgotten," and any amateur who fears losing his patience or his materials is *not* bound to do either. We cannot admit that because some suggestions do not prove of so much value as may be anticipated, that therefore none should be inserted without having been approved by "competent persons." Who is to be the judge of these competent ones? Further, supposing even skilful photographers should fail in a process, as they sometimes will, that would not neutralize the fact of another having succeeded. If our correspondent means that a committee that would undertake to try and *report upon* various processes, would be a highly useful body, we agree that it would, but even that would not always settle the question. 3. There is no difficulty in purchasing collodion sensitive enough for the purpose you name; but to make it involves the *perfect purity* of all the *ingredients*, not only in the collodion, but also in the exciting bath and developer. If you have the skill to ascertain these points you may succeed, but if not, no instructions we can give in answer to your letter could ensure it. However, try the following:—absolute alcohol four drachms, *pure* washed ether four drachms, pyroxyline (made from Swedish paper, with mixed acids at 130° Fahrenheit, and *well* washed), four-and-a-half grains iodide of ammonium (*pure*) five grains.—Ed.]

ANSWERS TO CORRESPONDENTS.

Amicus.—We have but one mode of dealing relative to the matter upon which you address us; our motto is "Nothing extenuate, nor aught set down in malice."

M. A. J., Cedo Nulli, Thomas Keeny, all ask us to recommend that which we consider the best collodion in the market; the two first named also request a reply by letter, while the second does not even pay the postage of his own letter. We cannot undertake to recommend any particular maker's collodion, it would be unfair to the majority of dealers, and, after all, any recommendation of ours could only have the weight of our own individual opinion. We must also repeat that we can only answer communications through the *Journal*, otherwise our correspondence would be never ending.

Young Photo., Sheffield.—We have so many correspondents who adopt this pseudonym, that we are obliged to distinguish by the locality. For developing positives on glass use the following:—Protosulphate of iron fifteen grains, water one ounce; dissolve, then add nitrate of potash ten grains, nitric acid two drops, alcohol twenty to thirty minims. The quantity of alcohol must depend upon its strength, its use being to make the solution flow readily *without streaks* over the plate. Try the twenty minims first; if it does not *readily* flow, add a few drops more until it does. Finally, do not pour on the solution with a dash on one spot, but let it flow on gently, moving the measure containing it along the edge of the plate. See Mr. Jackson's letter in No. 6, page 76.

Young Photo., Plymouth.—Cyanide of potassium is *not* suitable for fixing plates prepared by the collodio-albumen process. Use hyposulphite of soda.

R. S.—We recommend a glass bath *made in one piece*, and packed in a wooden case, with a layer of felt between, in preference.

Richard Brown and Lillywhite. — Your communications shall receive attention in our next.

FOR SALE—Cheap, a Valuable No. 3 Voigtlander PORTRAIT LENS, and Whole-Plate CAMERA, with extra box for Copying, £13 13s.

A superior swing-back Walnut CAMERA for plates 14 × 14, with brass rack-work, by Bourquin, £4.

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PHOTOGRAPHY.

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PAPETERIE MARION, 152, REGENT STREET (W.) LONDON.

N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."

The Liverpool & Manchester Photographic Journal.

New Series. No. 16, Vol. II.—AUGUST 15, 1858.

E have received a communication from a
rrespondent, intimating that our use of the
ord "jesuitical," as applied in our last
Leader," is offensive to himself, and likely
be so to the largest body of Christians in
e world, including especially "our French
otographic brethren," and deprecating the
troduction of anything approaching to con-
oversy upon religious matters in a publica-
on devoted to photography.

It is perhaps scarcely necessary for us to
ate that we have no intention whatever of
ich a misapplication of our space; that the
ord was employed by us inadvertently, and
ithout the slightest idea of giving offence to
ny one of our readers, of which indeed our
orrespondent expresses himself convinced,
ut considers at the same time that we are
ound to recall the offensive epithet; hence
ur present notice of the matter.

We have been for some time urging the manufacturers of photographic lenses to adopt the use of some less heavy material than brass for the mountings, which, as at present employed, adds in some cases fully two hundred per cent. to the weight, as we think, unnecessarily. For this purpose we have suggested a trial of papier machée (as also indeed for cameras), which material, we feel convinced, could be very readily adapted to the purpose, though it would probably involve the construction of a few good patterns, besides some little trouble at first. We feel convinced, however, that the advantages gained would be well worth any labour expended upon it, and that the change would be unquestionably economical in the long run.

There is another change we should like to see universally adopted, that is, a total abandonment of the rack and pinion to all lenses, whether large or small, and a substitution of a rack adjustment to all the cameras instead. The advantage of such a change may not at the first blush be very apparent, but we are of opinion that it would be both more convenient and more economical than the present practice:—more convenient in consequence of position; more economical, because not only could very large numbers of racks be cut at one operation by aid of a planing machine, and not more than two, or at most, three sizes would be all that would be required, and none of such highly-finished workmanship as those required for lenses; but also because many lenses are often required to work with but one camera, consequently, in all such cases there would be a clear gain of all the racks exceeding one. Another good effect would also be the consequence of the change—that the diaphragms would in all cases of double combinations be as readily applied between the lenses as they are now placed in front.

In a note recently received from a professional photographer of great experience, in Liverpool, amongst other matters we find the following: "I see you are often asked about colouring positives; will you inform the public that the positive picture will take quite sufficient colour *without any preparation*, and may be varnished afterwards."

We have been requested by Herr Pretsch to publish a letter to him from Professor Petzval relative to the orthoscopic lens controversy. Divested of all matter purely personal, the whole amounts to a denial of the possibility of M. Voightlander's working his lenses by any formula of the former.

By an ingenious arrangement, which we shall probably describe in our next, M. J. C. d'Almédia has succeeded in exhibiting enlarged stereoscopic views and other subjects, projected upon a screen by the assistance of magic lanterns, in such a manner, that the perfect steoreoscopic effect is produced and can be observed by a number of spectators at the same moment.

We have been favoured by Mr. Skaife with copies of the letters recently published in *The Times* relative to that extraordinary sitter of his, The Exploding Shell, as well as with the stereographs to which allusion is made therein. The letters will be found in another column. The facts extracted appear to open up quite a new field of research regarding the phenomena of vision.

We scarcely know whether we should feel the more flattered or amused at the position assigned to us by the editor of *Photographic Notes* in his leader of the 1st instant—that of being the *only individual* who has *ventured* to raise an objection to the new Petzval Lens. He also says — "This gentleman has planted himself as a stumbling block directly in the way of Progress, and will be run over unless he gets out of the way." Possibly! yet a stumbling block sometimes upsets, and thus arrests the progress of a dangerous vehicle. Now, we are quite prepared for, and ready to receive our full share of "hard knocks," but we expect, and have a right to demand, that they shall be administered with gentlemanly courtesy, a definition scarcely applicable to the conclusion of his remarks upon us.

Since he has referred to our correspondence (to which we have no objection), we must correct a slight error in his statement. We did not *terminate* any private discussion, but, on being asked why we wished to *shirk* one with him on optical matters, we denied any desire to *shirk*, but simply and flatly declined to enter into it, perceiving neither honour nor profit in a private discussion upon a matter of but little importance to us, and which would probably hinge upon the interpretation of an imperfect definition, viz. *the optical centre of a lens.*

We are told, that with respect to our paper, if we consult the article in No. 49 (of *Photographic Notes)*, and *study it carefully*, we shall find the exact converse of our assertions *demonstrated.* We have done so, but do not by any means find this statement borne out. Notwithstanding the polite recommendation to apply "to any of the excellent teachers of mathematics with whom London abounds," we fear that, were we to do so, our chance of profiting by the instruction which we might have proffered to us, would not be greater than it was when we accepted it some six or seven and twenty years ago; and certainly we should not find one who would consent to add the triumphant Q. E. D. to the article quoted in his No. 49.

Let us examine now two or three of the assertions made in that article, and first we quote the following words in page 100: "We shall suppose the lens to be a No. 1, having a combined focus of rather more than eleven inches, and covering a picture 10 × 8, with a half inch stop." Now the question we would ask is this—Does the writer mean to assert that a field of 10 × 8 inches is covered by an orthoscopic lens *without distortion of the marginal lines*, the combined focus of such lens being eleven inches? If so, we must be pardoned for preferring the evidence of our own eyesight to his. We have had the opportunity of examining one of the focal length quoted and taking several pictures therewith and we *affirm most positively* that even with the dimensions of $9\frac{1}{2} \times 7\frac{1}{2}$ inches for the picture, which were those we used, the *marginal perpendicular lines, when the camera was perfectly horizontal, were inclined outwards at their extremities.* We do not mean to assert that the error in this direction (by the way in his leader of the 1st August the author uses the somewhat Hibernian phrase of an *error in the right direction)* may not be preferable to one in its opposite. It is perhaps a matter of taste. We should like to have the opinion of Adonis, with his perfectly-formed legs, whether he would prefer a photograph of them, taken with the old landscape lens, by which he would appear slightly *bow-legged*, or with the orthoscopic lens, that would exhibit him as *knock kneed.*

We sometimes find ourself speculating whether our antagonist ever reads what he has previously written; we come, however, to the conclusion, that at any rate this can very rarely be the case, otherwise we should not so often find him arguing at one time in one direction and at another in the reverse, the changes being occasionally so rapid, one upon another, that they almost take away one's breath. As an instance we adduce our second extract from the same article, where he shews correctly that the oblique pencils have a longer focus than those in the direction of the axis. "What then is the length of C l?" [the oblique pencil]. "In reply to this query will be seen the great ingenuity of M. Petzval's arrangement; for it appears that C l [the oblique] is greater than C m" [the axial pencil]. "This is, of course, in favour of flatness of field." But let us see what immediately follows—the italics are our own:—

> "In the common view-lens, presented to extremely distant objects, *the field is very approximately a sphere*, the centre of which is the centre of the convex surface of the lens. On taking the exact dimensions of the Orthoscopic Lens, and working the problem out completely, *we find that, as regards flatness of field, the common view-lens has a little the advantage;* and this result of theory is also borne out by the experiments we have made with both forms of lens differing but little in their focal length.'

So, then, according to the Editor of *Photographic Notes*, the very *flat field* due to the great ingenuity of Professor Petzval's arrangement, is one having a curvature *exceeding* that of a single combination of equal focus to the orthoscopic one.

Be it observed, this *is not our assertion;* we entirely disclaim it. We now come to a point in which argument, no matter how ingenious it may be, can outweigh a simple statement of facts, first, however, making another extract:—

> “ So much for flatness of field. Next, with respect the angular extent of the field of view. It might supposed that the common view-lens having the vantage in *flatness* of field, it ought to include a ider angular field; but that is not the case, because e distortion produced by the common view-lens is great, and becomes so unbearable when a certain nall angle of field is exceeded, that it is necessary om this cause to restrict that angle to abont 35°. the case of the Orthoscopic Lens, the distortion not only different in *character*, but much less in *nount*, and therefore, although the field is not ab- olutely so flat, still an angle as great as 47° may be ncluded. This is a great merit of the Orthoscopic ens, and one which should recommend it particu- rly to the notice of the landscape photographer; ecause the bad effects of curvature of the image ay be remedied by using a small stop, but for dis- ortion there is no such remedy. A small stop gives finer point to the pencils, but does not affect the urvature of the lines of the picture.”

In testing the orthoscopic lens we before lluded to, we compared it with an ordinary ne of corresponding focal length, and that a y no means unusually good one. We used he same sized plates and worked upon the ame subject, viz. near and distant houses, ome obliquely situated, others at right angles o the axis of the lens, with distant hills and rees; gardens with rectangular boundary walls being in the foreground.

The marginal right lines were with both enses somewhat curved, of course, in opposite lirections; but the angle of picture included n the field of the *orthoscopic lens* was *less than hat* of the ordinary one—a fact in perfect accordance with the theory of the subject. We must not forget that the *extreme limit* of field of the orthoscopic lens, as well as that of the other, was attained, the distortion in the marginal perpendicular lines (in this case the sides of houses) being clearly and noticeably perceptible. We carefully measured the angle of picture included by the orthoscopic lens—measured it, not upon the plate but *upon the subject itself*, so that there could be no mistake, and found it to be exactly 30°, while the other lens included an angle of 34½°.

With regard to the remarks upon “ equality of illumination,” we do not find the premises laid down in accordance with facts, even by working out the construction given; but we dissent from this, the point l not being nearer to C than the point m in the figure, as also from the conclusion founded upon this false assumption.

We have already (at page 163 of this *Journal)* admitted the superior qualities of the orthoscopic lens as a copying instrument for plane surfaces; but we freely admit having overlooked to some extent the more correct rendering of the perspective of a landscape enjoyed by the Petzval lens, until after a careful perusal of Mr. Ross's paper on the subject in the last number of *Photographic Notes*, although we by no means assent to all the statements made by that gentleman,—that is, provided we do not misapprehend them, a circumstance not at all improbable, some of them being rather vaguely worded.

We are quite aware that, in venturing to differ upon any optical point from so high an authority as that of Mr. Ross, we lay ourself open to a charge of great presumption; but the science of optics is one of a very extensive range, and even the best informed in it occasionally fall into errors of opinion; but, beside all this, we are in a strait, we must either sacrifice our honesty or incur the odium of presumption—we prefer the latter.

It must not be forgotten, that, great as is the advantage of absolute correctness of perspective, there are other points to be taken into consideration in the construction of a lens that are equally important; moreover, the correction is *not absolute*, even in the Petzval arrangement; error still exists, though it may be reduced to a minimum. A single lens, with a stop in contact with it, would produce equal correctness of perspective, yet this is not the best form even for a single combination, because there are conjoined with the advantage objections of such overwhelming importance, as to more than counterbalance the former. It is distinctly admitted by Mr. Ross that something is sacrificed to the greater approximation in the orthoscopic combination to correctness of perspective, the sacrifice being in fact a portion of its *rapidity of action*. It is furthermore admitted (as of course must be the case) that when near and distant objects are both to be delineated at the same time, no larger angular pencil can be employed than with the ordinary lens. Upon the whole, then, we come to the same conclusion at which we had arrived before, viz., that we have at best a choice of inconveniences, and we must each select that which is the least intolerable to us.

PHOTOGRAPHIC EXHIBITIONS.—The Crystal Palace Company have opened an Exhibition of Photographs, under the superintendence of Mr. Delamotte. The portion of the palace devoted to this exhibition is in the gallery close to the centre transept. It would appear from the advertisement in another column that the space for pictures is not quite filled up, and photographers are invited to make immediate application for the remaining space.—At the forthcoming Annual Exhibition (the third) of the Photographic Society of Scotland, to take place in December, the Council have announced that they will award two silver medals: one for the best photograph exhibited by any artist; the other for the best photograph exhibited by a member of the Society—the photographs in both cases to be the exhibitor's own production.

A WEEK WITH THE CAMERA AMONG THE KENTISH HILLS.

By Mr. T. B. Wire.

(Concluded from page 192.)

Sundridge Church was the next place we reached; but although we tried this from all points, not one was available to our purpose; it being, like most of the other churches, built on the highest ground. The approach to it was through a fine avenue of trees, with a lich gate at the end, and beyond was the church. The light, when we were there, was perfect, falling prettily upon the trees, shadows of which fell across the road with a glorious effect. With much regret we packed up again, and made our way to Otford, where the archbishops of Canterbury formerly had a palace, portions of which still remain. We tried one view: but the day was too far advanced, and although our plate was exposed four minutes, the result was anything but satisfactory.

At Sevenoaks we found the old mansion at Knowle closed, in consequence of the death of the Earl of Amherst; and as there is occupation there for a couple of days, we thought it advisable to leave it for a future visit. At the hotel (Sevenoaks) we met a gentleman, who, like ourselves, was amusing himself with photography; and from him we learnt of Ightham Moat House, which, on his recommendation, we visited. Permission to photograph it was soon obtained, and also a room in a small cottage hard by. I was busily engaged in focussing our first view, and Mr. Wood, with a plough-boy, was taking the horse out of the dog-cart, when the family turned out to take stock of us, and to watch our proceedings. To us they were particularly kind, doing all that lay in their power to assist us, taking us to different points whence views of their house were to be obtained.

It is a very old house, built partly in the reign of King John, with a court-yard in the centre; the whole surrounded by a moat. Of the chapel, the hall, and also of the entrance, Nash has given us views in his *Old English Mansions.* Hence we drove to Farmingham, and the next day (Saturday) we spent with some friends residing in the neighbourhood. Thus ended our week's photographic tour among the hills of Kent.

Since our return, the dog-cart has been properly fitted up, and divided into two unequal portions, having entrances back and front. The back part, which is the largest, is devoted entirely to photography, and in this division are compartments for the different bottles; and a hole has been made through the bottom for the bath to be suspended in, thus rendering it much less liable to be upset. The front part contains a zinc tank, the water from which is conveyed to the photographical department by means of an India-rubber tube; and the space under the tank is intended for our carpet-bags, &c. The tent has also undergone some modifications, which render it more easy of adjustment.

The ordnance maps of the whole of Kent, Surrey, and Sussex have been procured, and all the places of interest that can be found out by reading or otherwise, have been marked upon them with a red circle; and a book, with a small description of what we may expect to find at any one of these circles, has also been arranged with an index, so that, as we are travelling (say, for instance, from Seal towards Igtham), on the left side of the road we see one of our circles at a place marked on the map as Stonepitt. We refer to our book, and there find that Stonepitt is a very ancient mansion, in the Elizabethan style. This, as it lies about a mile from the road, we should undoubtedly pass, were it not for our maps.

We have all heard a great deal of the difficulties attendant on working wet collodion away from a regular operating room—and we had ourselves, on a former occasion, experienced many; so, of course, on this one we had prepared our minds to encounter innumerable obstacles Some of these, I may say *many,* proved to be myths, and, for the remainder, a little ordinary forethought and ingenuity removed them. We have at present only been looking at what may be called the bright side of the subject. We have been describing the halcyon days of our photography. But there is another side to consider. Let us picture to ourselves a miserable pedestrian photographer. "He grunts and sweats under the weary load" of his apparatus, toiling along to the scene of action with a pack on his back. He arrives in a semi-animate condition, and has then to prepare and develope his plates in a shaky tent—highly recommended for steadiness and portability. The portability is obtained by the sacrafice of space, so down he squats upon his box of chemicals, and pours a film. The weather is warm; the ether volatile. His head approaches very near the top—in some cases, is itself the apex of the structure. In a few minutes, therefore, with a pain in his neck and a cramp in his legs, he begins to experience the advantages of a portable tent. The chemical vapours rapidly accumulate round his doomed head, and long before he has fixed his first picture, the excess of exhalation, and the absence of ventilation, have given him a headache for life. I have worked in a tent myself, and therefore speak feelingly.

The bath, after his plate is sensitized, is usually placed under the table, in the open air; for portable tents are only roomy as long as you have nothing in them. Manifold are the dangers to which this nitrate bath is exposed. The ground by road sides is not usually level as a billiard table. If it escapes this danger of being upset, it has to receive dust, leaves, and, inquiring coleoptera within its depths. Presently, within the tent a bottle of hypo is upset, and some of it, finding its way through the cracks in the table, quietly and unobtrusively drip, drip, drips into the bath below. On noticing this, our photographer wakes to a sense of his situation, drops the picture he is fixing, springs up to save his bath, and down goes the tent and the bottles and all. And so he comes to grief.

Sometimes, again, rude Boreas (or rude boys) upset his tabernacle, while he is exposing his plate. Picture to yourselves the expression on his travel-stained toil-worn face, when, returning, he sees the wreck of all his hopes. He loses heart, curses open-air photography (especially with collodion), and is reduced to the miserable expedient of providing himself with livers dry plates or sheets of sensitive paper, at—per doz.; exposes them, despatches them by post for developement, at—per doz.; has the results printed at—per doz.; and . . . fancies he is taking photographs.

Seriously—though views, and very good ones, have been got in spite of the portable tents—I believe misfortunes such as I have described to be of no uncommon occurrence; but we want some contrivance that we are sure will answer, under the most unfavourable circumstances. As far as we are concerned, we point to our dog-cart, and maintain that there the secret is solved. Strong must be the hurricane that can blow *that* down. Ingenious the insect that can commit suicide in *our* bath. The hypo must perform and act contrary to the laws of gravitation to get into it. Therefore, I can confidently recommend any of our members who may venture upon a photographic tour this summer to follow our example.

I must trespass yet a few minutes longer on your patience, to point out, that with the wet collodion process we found much pleasure, and even advantage, in shewing the negative to the inhabitants. They could then plainly see that our object was what we represented it to be, and we found a great alteration in their manner. All reserve vanished, and assistance was eagerly proffered. This advantage the waxed paper cannot afford. With paper, too, one must leave the field with half a dozen pieces of blank paper, uncertain whether the negatives are good; and their developement at night adds a hard *evening's* to a hard *day's* work. Whereas, the wet collodion operator spends his evening in searching for pictures for the morrow, and extracting from the aborigines the whereabouts of the picturesque.

Our improved arrangements we hope, next August, to put to the test of practical experience; and I confidently predict that the month which we then intend to devote to photography in a dog-cart, will not be the most miserable in our lives.

THE PHOTOGRAPHER.

No. 2, New Series.

The following are Extracts from "THE PHOTOGRAPHER," an ever circulating *manuscript Photographic Journal:*—

From J. T. TAYLOR'S PAPER.

New members.—I have the pleasure of introducing among us two gentlemen, one of them being Mr. Archer, of Manchester, and the other the gentleman for whom was reserved the honouring, first, of striking the first fatal blow at the root of the dark tent system, by his application of the hygrometric properties of honey to the collodionized plate, and, secondly, of opening the door for the introduction of a novel, interesting, and now widely extended branch of our art—the manufacture of microphotographs. The first of these tiny little pictures I had seen were some kindly presented me by the inventor himself, Mr. Shadbolt, and they interested me exceedingly. While in Edinburgh a few days ago, I also saw an excellent collection, by Mr. Bryson, optician, there, who seems to be doing quite a trade in them. While visiting that gentleman's establishment he shewed me a novel and effective modification of the Bunsen gas burner, by means of which views in the lantern could be exhibited with great splendour. It would be desirable were he to publish a short account of it. I have been trying to produce micro-photographs, but in the meantime have given it up till I get hold of a proper structureless collodion. I have completely succeeded with the converse of this operation, viz. producing *enlarged* pictures of microscopic subjects. How remarkably simple it is! This forms a highly instructive and pleasant application of the micro-camera. By the way, will Mr. Shadbolt, who is an authority in microscopy, or any one else, kindly suggest a suitable name for such magnified pictures? "Micro-photograph" wont do, because that name has been given to the reduced pictures; the name should be as short and concise as possible, and be as far removed as possible from the $\underline{\underset{1}{\text{pho}}\text{-}\underset{2}{\text{to}}\text{-}\underset{3}{\text{gal}}\text{-}\underset{4}{\text{van}}\text{-}\underset{5}{\text{o}}\text{-}\underset{6}{\text{gra}}\text{-}\underset{7}{\text{phic}}}$ style of nomenclature.

To those of you who like vignette portraits I will communicate a simple way of producing a first-rate vignette printing glass.

Procure a piece of black paper with a dead surface, and from this cut an oval (or any shape you prefer). Paste this oval on a sheet of white paper, and from the sheet thus prepared take a negative on a piece of nice flat glass, or paper if you prefer it, but observe in taking it that it be *considerably out of focus*. By these means you will have a vignette plate with the centre quite transparent, gradually merging into perfect opacity.

I see that M. Mangey, the celebrated lens maker, has introduced "the expanding and contracting stop between the lenses of the portrait combination," which I published in this Journal a year ago. It will prove a great boon to photographers.

I very much admire the manner in which Mr. Warren reasons on his modification of Dr. Norris's process for preserving collodion plates, and quite homologate his strictures on the relievo-engraving process.

I enclose a picture, poor enough in itself, but interesting on account of its having been taken during the late eclipse of the sun. The figures represent the President, Vice-President, and Secretary (myself) of the Dumfries Photographic Society. You will see that we have an ordinary telescope fixed in the camera instead of the usual lens. We used the non-reversing eye-piece, and by a little care in adjusting the focus, succeeded in getting fair pictures of his solar majesty, spots and all; but, alas, when he came to be eclipsed, he *was* eclipsed in reality, for thick murky clouds covered the whole sky. We must just hope for better luck another time.

JOHN TRAILL TAYLOR.

From RICHARD RIMMER'S PAPER.

Our friend Mr. Jones, in his remarks on the dry collodion process, complains most justly of the tender films which they but too often produce. I have no doubt that this *may* be avoided by employing a suitable sample of collodion, which it is, however, almost impossible with any degree of certainty to procure. I have more than once gone to the fountain head and employed that prepared, or at all events *said* to be prepared, by Hill Norris himself, but there was always the same blistering and peeling off of the film. I believe that Mr. Berry, of Liverpool, can supply a sample of pyroxyline expressly prepared for the dry processes, with which any amateur may make most excellent collodion. For my own part, however, I much prefer the honey process, it steers, as it were, a middle course; it is neither absolutely wet nor absolutely dry, and is capable of producing negatives which no other process can easily surpass, while its keeping properties are, for all ordinary purposes, quite sufficient. *In medio tutissimus ibis.*

In the employment of honey, moreover, Mr. Jones need not in any way distress himself about his nitrate bath. It is quite true that honied plates being moist are not *quite* so easily packed as those perfectly dry, still I would rather endure this inconvenience than experience the mortification of finding a long day's toil rewarded only with tender and blistered films.

I enclose a view of the South Porch of Lincoln Cathedral, taken on a honey plate, and am sorry that I have not a better print to vindicate the claims of my favourite process. R. R.

From Mr. R. L. Jones's Paper.

Were I in a South Sea Island, I should be tabooed; were I in India, I should be a Pariah: being in England, I feel my position as degraded as if I were both. I use nothing but waxed paper, while all around me rejoice in the Brahminism of collodion. Before I was quite lost in the abyss of paper process, it is true, one or two friends in the *Notes*, and one or two in the *Photographer*, condescended to notice me, to try if there remained one spark of true photographic fire, and to explain how baths might be used acidified, and films kept fast to glass; but now, all I can expect is, "Why does the fellow bother us about waxed paper, when nobody cares a grain of hypo about it?" But this is only when I have got the "blues."

I feel myself a hero, a champion, a defender of the needy and defenceless; all others are fickle. faithless lovers of novelty, fond of the trick of definition to the sacrifice of artistic beauty. They are the tea-board painters,—pretty bits for bellows and card racks are their work,—while I am Michael Angelo, on the one hand, and Turner on the other.

Come, I think that will do; and having placed myself where I ought to stand, I will begin my lucubration at once, merely adding that if the readers feel afflicted with the above, let them thank their stars that they have not to pay an extra penny for the privilege.

I have been trying the turpentine process, and my experience is rather that named in the last *Journal of the Photographic Society*, page 230, the lights are not as dense, and the process is no shorter. I have taken on the same day, and same hour, an ordinary waxed paper negative and a Sisson's, and I will send a print from each as an appendix to this, requesting the member whom they may reach while he has the *Photographer* in his possession, to add them to the other contributions. I buy the waxed paper iodized from Knight, and to be sure of the turpentine I got it from Marion. Iodized and albumenized albumen is bad for solutions, and I have a difficulty in keeping the paper from being marbled. I fancy the definition is rather better; but I must be consistent with my exordium, and not insist too much on that.

I enclose a print from a Knight's waxed paper negative. I never fail in getting something worth keeping, if not first-rate. R. L. J.

(*To be continued.*)

ON CERTAIN MODIFICATIONS OF THE POSITIVE PRINTING PROCESS.

By James Alexander Forrest.

In the following details of my modification in positive printing, the chief points I have aimed at are pure whites and an economical use of the gold.

Take the whites of two eggs to one ounce of water, shake them well up, then add fifteen grains of salt for every ounce of solution; allow this to stand for one hour, then float the paper upon it in the usual manner, and hang it up to dry.

Sensitize upon a solution of forty grains of nitrate of silver to each ounce of water; after drying, the exposure in the pressure frame is to continue until the detail is fully but not over printed, as is generally the custom, and on removal wash the proof in cold water, and afterwards immerse in a solution of salt and water, say a teaspoonful to six ounces. The object of this operation being the removal of the unaltered nitrate of silver from the print, or rather to effect its conversion into the chloride, the former being liable afterwards to affect the color of the finished picture if not neutralized.

After rinsing in cold water lay the print upon a piece of glass face upwards. Have at hand two stock bottles, one of solution of chloride of gold three grains to the ounce of water, and the other a solution of carbonate of soda, also three grains to the ounce.

Mix together half a drachm of each solution, which quantity will be found sufficient for a dozen prints 9 × 7. Pour it into a dish, and apply it by means of a flat camel's hair brush to the surface of the print. In the course of a minute or two the solution produces the desired tone; wash well, and fix in new hyposulphite of soda, the strength being three ounces to one pint of water. After immersion for about a quarter of an hour, take the greatest possible care to wash the prints in a running stream of water for at least four hours.

These instructions may appear tedious, but I am persuaded that permanency cannot be ensured with less labour. I have tried prints so treated in damp situations, and have never found them to give the slightest indication of failure.

PHOTOGRAPHIC CURIOSITIES.

The following letters, addressed to the editor of *The Times* newspaper, allude to some hitherto unobserved phenomena of considerable interest:—

From The Times, July 14, 1858.

Sir,—As you did me the favour of inserting my letter on the photo-stereo of the exploding thirteen-inch shell on Woolwich Common, in *The Times* of the 29th of May last, perhaps the following account of a subsequent experiment made by me at the same *locale*, may not be uninteresting to your photographic readers.

On Monday, the 28th ult., at twenty minutes past eleven a.m., a thirteen-inch shell was fired from the mortar battery by the 2nd company of the 1st battaon of Royal Artillery. The shell, weighing 200 lbs., as ten seconds in traversing the air, and fell within wo yards of the flagstaff, distant from the battery six hundred yards.

The enclosed photo-stereo (No. 1), taken as the hell emerged above the smoke, shows three-eighths f an inch of the projectile's track commencing at he distance of eighteen times the shell's diameter bove the mortar and 1½-inch visual distance above he head of the superintending officer in front. But hough this is, I believe, the first time a mortar shell has ever been photographed in its ascending flight, ufficiently intense to print from, it is not that "What next?" to which I wish to call particular ttention, but the likeness of the human head which o distinctly dominates in the smoke. This phantom does not appear to be the result of chance, for on repeating the experiment it is invariably reproduced at a certain phase of the smoke's expansion.

Further, the apparition is not, nor can it I believe, be seen by the human eye, excepting through the medium of photography, which, in its highest instantaneity, appears to eternize time, by giving at the photographer's will a series of pictures of things which have their birth, marked phases of existence, and extinction in a moment (from the 20th to the 20,000th part of a second), much too fleeting to be noted by the naked human eye. In short, photography, as exemplified within the last fortnight at the Woolwich mortar battery, promises to do to epochs of time that which the microscope already does to small objects, and the telescope to distant ones. I am, yours, &c.,

Vanbrugh House, Blackheath, THOMAS SKAIFE.
July 12, 1858.

From The Times, August 5th, 1858.

SIR,—In *The Times* of last Thursday is an account of the last firing of the 36-inch mortar on the Plumstead Marshes. Through the kind facilities afforded me by General Cater, president, and Colonel Pickering, secretary of the select committee (War Department), I was enabled to take a photo-stereograph of the monster shell in the course of its flight, together with a phase of the mortar's explosion: a print from which (No. 1) I take the liberty of enclosing for your inspection, and which, you will perceive, is confirmatory of what I intimated in my last letter (see *Times*, 14th July), viz. that epochs of time, inappreciable to our natural unaided organs of vision, could be made evident to our senses by a photographic camera as decidedly as the presence of animalculæ in blood or water is by a microscope.

It was, undoubtedly, ignorance of this newly-discovered principle in photography that induced a professional gentleman, well acquainted with the action of shot and shell, in the Crimea, on my pointing out to him the track of the projectile and its termination in the stereo, to exclaim, "But what stopped the ball?" What stopped the ball? This indeed was a poser. But, thank God! I mentally exclaimed, this is the nineteenth century instead of the seventeenth, or, as sure as fate, the "stopper" of the ball would soon have found his poor flesh quivering in the red-hot pincers of the witch-finder. The nineteenth century is the epoch of mesmerism, and mesmerists will perhaps attempt to account for the sudden stopping of the monster projectile in mid air to the passing before it of a piece of vulcanite (term applied to the substance by Mr. Goodyear, the patentee); but be the mesmeric theory a bubble or not, it is undoubtedly a fact that by a peculiarly rapid motion given to two small thin pieces, each two inches square, of baked india rubber, by means of what I call a trigger movement, an optical illusion is produced on the transit of a projectile which may be liken d to the stopping of a railway carriage by a brake.

The first application of this optical brake is perceived in the commencement of the shell's track on the side of the mortar. The shell then appears gradually to have decreased in speed, until it has gone the length of four of its diameters after the brake has been applied, when it appears finally to have stopped, and that for an interval sufficiently long to admit of its portrait being photographed accurately enough to give a tolerable idea of its size and shape; after which, it is assumed, the shell proceeded on its rapid course for one mile and a half further, arriving at its goal not one measurable iota of time less for its having lagged by the way to coquet with the photographer.

And thus I account for this seeming paradox. The whole operation of putting on the optical brake to the flying projectile, stopping its course, and photographing its portrait, according to data supplied by this stereo, appears to have been done in the fiftieth part of a second. The shell at this part of its course is supposed to be flying at the rate of five hundred feet per second (the diameter of the shell is believed to be about two feet and a half), when the now applied brake gradually retards its flight, and finally succeeds in stopping the shell, after it has gone four diameters, or ten feet from first application of brake.

The commencement of the shell's track on the side of the mortar, it will be perceived, is misty and ill defined, whilst, on the contrary, the termination is sharp, and gives a tolerably clear idea of the sort of snail that has been leaving its trail behind.

This difference between the beginning and end of this photographed section of the projectile's parabola, is thus accounted for:—The vulcanite "spring shutters" admitted to the sensitized collodionized plate, through a pair of lenses, a view of the shell the instant it emerged from the mortar's smoke, by being made to revolve on their axes ninety degrees, at which point they have exposed the full aperture of the lenses, and at this point the hundredth part of a second has elapsed; meanwhile, the shell, flying at the rate of five hundred feet per second, has just interposed its trail on the collodionized plate the length of two of its diameters (⅛-inch), and succeeds in trailing two others while the shutters are having their action reversed and returned to their original light-excluding position behind the lenses.

Now, as the first part of the shell's track (one-sixteenth of an inch wide) has been exposed to the full action of light from the commencement of the shutters' opening to their final closing, this part of it has, consequently, been undergoing a gradual effacement during the whole period of the fiftieth part of a second; while, on the contrary, the terminus of the track photographed at the final closing of the shutters must, in the shortness of its exposure to the action of light, bear a moving analogy to the rapidity of light itself—known to travel more than one million of times quicker than a cannon ball: and hence the ball's apparent stoppage in the air *malgrê* the tremendous physical force argument seen in the act of urging it forward.

But what military man, however familiar he might be with the firing of projectiles, would believe, had he not witnessed the photographic fact, that that physical force argument, so sharply depicted in the stereo in question, was other than pure allegory, instead of being, as it actually is, the *boná fide* stereoscopic portrait of a real natural cyclops, sprung into giant life by the igniting of eighty pounds of gunpowder in the most ponderous piece of artillery probably ever constructed by the hands of man.

No. 2 is merely added to show the thirty-six-inch mortar size, and relative position at the time it was fired.—I am, yours, &c., THOMAS SKAIFE.

Vanbrugh House, Blackheath,
3rd August, 1858.

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street Liverpool.*

COLOURING GLASS POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Can you kindly, through the medium of your very valuable *Journal* (or otherwise, as it may suit you), give me any information as to colouring collodion pictures on glass, or inform me in what number or numbers of your *Journal* anything of the kind has appeared. I have applied to the party mentioned in the enclosed advertisement, cut from the *Journal*, and enclose you the reply, which seems to me to be very vague and not at all in keeping with the "promised information" which the advertisement contains. I have tried the balsam preparation in every way that has suggested itself to my mind, and cannot get it to answer at all, not even as well as when the plate is simply varnished. Such disappointments as these occur to me as being calculated to discourage, rather than otherwise, the amateur; and I am sure you will coincide with me in thinking that unless some better method can be sent, and more detailed information can be afforded, the advertisement would be better kept out of so valuable a journal (in other respects) as your own; or at all events, I would that the advertisement should be worded in more truthful terms, and such attractive phrases as to the plates being scarcely distinguishable from "miniatures on ivory," &c. &c., should be omitted.

Trusting that you will kindly give me the required information, or inform me of any work on the subject of colouring, I am, Sir, yours respectfully,

245, Burlington-street, RICHARD BROWN.
Liverpool, July 8, 1858.

[See reply to "R. C. Gorens" in No. 14.—We cannot, of course, answer for the statements made in advertisements (indeed we do not *see* them any sooner than our readers), nor can we exercise any control over what is a mere matter of commerce, except by rejecting altogether anything positively offensive. We have seen some good results *said* to be produced by the method detailed in your enclosure. In No. 5, page 65, and No. 9, page 116, you will find what we have published on the subject.—Ed.]

VIGNETTE MACHINE FOR GLASS POSITIVES.

Suggested Improvement.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Can you, or any of your kind readers, inform me if the small machine for vignetting *glass positives*, sold by Mr. Atkinson, of Liverpool, at 17s. 6d. and 27s., is of any real practical use, as I cannot hear of any one who have given them a trial. An answer in your next will oblige.—Yours, &c.

LILLYWHITE.

[The instrument you mention is used by many, if not most, of the Liverpool photographers, and is perfectly effective. It was contrived originally by Mr. Mayall, of London, in whose studio we saw it many years ago, and consists of a circular disk of zinc or tinned iron, painted blue, having an opening in the centre with radiating points in the form of a star. This disk is supported by a light iron frame, and rests upon three rollers, to allow of a circular motion on its axis being communicated to it; and the disk also is adjustable in height, so as to be placed centrically with the head of the sitter, between whom and the lens it should be arranged about midway. During the exposure, the disk is kept in constant rotation, and consequently, being out of focus, is not itself delineated, but by partially obscuring the edges of the field of view, and this in regular gradation in proportion, as the part is more obliquely situated from the axis of the lens; the effect is to produce a very artistic shading of the figure that is extremely pleasing. We made a suggestion to one or two of our Liverpool brethren, which we think might be a convenience to them if carried out. It is this: It is necessary that when in action, the disk shall have a circular motion communicated to it, and this is usually done by means of a small wheel and band, and requires that the operator, or an assistant, should work the handle. It is, however, immaterial whether the motion is continuous in one direction or reciprocal; consequently, we believe that, by the addition of a short pendulum with a heavy "bob," the trouble of turning the handle might be dispensed with, as, if set vibrating, it would continue moving much longer than necessary to take a portrait.—Ed.]

TRANSFERRING THE COLLODION FILM.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Knowing your liberality in answering all enquiries, I beg to trespass on your kindness.

If you or any of your numerous correspondents could give any information respecting the transfer of collodion positives from glass to paper, leather, cloth, &c. in your next number, it would be deemed a great favour.—I am, yours, &c.,

Birmingham, July 24, 1858. COLLODIO.

[The transference of the collodion film from glass to paper was first effected and brought forward by Sir William Newton, at a meeting of the London Photographic Society, on 1st June, 1854, his method being to pour over the collodion film a varnish composed of one ounce of pure gum mastic dissolved in eight fluid ounces of alcohol, and two drachms of poppy oil added; the glass being then placed in a horizontal position, while a piece of thin paper, previously cut to a size slightly smaller than the glass, was saturated with the same varnish by the aid of a camel hair pencil, and at once placed carefully in contact with the collodion film so as to exclude every particle of air, and the whole allowed to become dry by evaporation of the spirit. When dry, the glass was placed paper side upwards in a dish of water, until the film began to separate from the glass, when it was gently and carefully drawn away. We see no reason why the same method should not be applied to leather, cloth, &c. A varnish formed of bleached shellac, dissolved in water by the aid of borax, assisted by heat, might also be useful for this purpose.—Ed.]

COLOURING GLASS POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—At page 193 of your issue of the 1st instant, I find one of your correspondents requesting information on the colouring of glass positives. I once laboured under the same difficulty in not being able to get sufficient depth of colour, but can now manage to lay on any quantity I like. Mr. T. S. Glaister, an eminent artist in Sydney, Australia, kindly furnished me with the following recipe:—Colour your photograph as usual and then varnish with the ordinary chloroform and amber varnish, which dries hard almost immediately. Colour your picture a second time wherever it requires a greater depth of colour, and *fix* this second layer of colour with only the *vapour* from your varnish bottle, by holding the mouth of it (all but touching) close to the glass, going over the parts that have been recoloured.

Care must be taken not to let any of the *liquid* run out, but only the *vapour*, which, being heavier than the surrounding air, pours out of the bottle (quite visible on a warm day), dissolves the varnish already on the picture, causing the colour which was resting *on* it to sink down *into* it, and thus become incorporated with it. If after this the colour is still not yet deep enough, repeat the dose by recolouring and revapouring any number of times you like. I consider a portrait may be very much improved by a little recolouring in certain parts in accordance with the above method.

I should feel much obliged if in your next you would kindly give the recipe for making such instantaneous collodion as that by which I see a portrait was taken at Woolwich the other day, of a shell in the act of bursting in the air, and stating also your opinion as to whether such preparation will keep well, as I have been informed it will lose its sensitive qualities in a few days. I suppose the said portrait was taken by the *wet* process.—I am, yours, &c.

50, *Mark Lane, Aug. 3rd*, 1858. M. J. SOARES, Jun.

[By the wet [process, certainly. We have made enquiry upon the other point, but as the operator explains his mode professionally only, we cannot assist you in the present instance.—Ed.]

THE FOTHERGILL DRY PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In my communication in your last *Journal*, "Practical details for working Mr. Fothergill's new dry process," I should have inserted in that part where I direct the albumenized plate to be placed in a dish containing so much water, &c., after "empty out the water and repeat the washing with a second quantity," "*take out the plate, incline it a little, and pour* LIGHTLY *on at one* CORNER *or* ALONG THE END *sufficient water to flow all over the surface*;" place on end on several thicknesses of blotting paper, &c. The water in the dish after the second washing, necessarily contains a little albuminate of silver, which is left, on the evaporation of the water, on the surface of the plate, and *might possibly* affect its keeping properties if not removed. The above obviates this, and does not at all injure sensitiveness.

I find I also stated, "place the plate in a dish containing, for stereoscopic size, two or three ounces of water," as dishes vary very much in size, and this quantity in some would not cover the plate. It would have been better had I directed as follows:—"Place the plate in a dish containing sufficient water to cover it to the depth of from a quarter to half an inch, according to size and depth of dish;" wash well for about half a minute, &c.; repeat with a second quantity, &c.; "take it out, incline a little, and pour on sufficient water," &c., as recommended in first part of this communication. The dish should be sufficiently large to allow of the water for second washing being poured in *without its falling on any part of the plate.*

From the universal interest this beautiful process is exciting, I feel that no apology is necessary for being thus minute, and occupying your valuable space; for although it is as certain, easy, and simple as possible for any to be, when properly manipulated, it necessarily produces disappointment improperly done, either from misunderstanding or not following the directions given. I would also here remark that these take longer detailing than carrying out, and lessen rather than increase the time required for preparing the plates.

I have frequently the following inquiries made:—"May the prepared albumen be used *more* than once?" No. "Will it keep, or does it require to be prepared fresh each time?" If kept in a bottle corked, it may be used several days after being prepared, as long as it continues clear and bright. I would recommend it always to be filtered through sponge before using. If the proportion 10 oz. white of egg, 6 oz. of water, 80 minims strong liquor ammonia, make it too thick to filter easily, add 2 oz. more distilled water: with eggs two or three days old, this is liable to be the case—such as are not fit for boiling should on no account be used. Of what use is the ammonia in prepared albumen; is it not likely to injure the keeping properties and produce fogging?" It *increases sensitiveness*, causes prepared albumen to keep fit for use until sometime after being made; does not affect keeping properties—plates having been found unchanged a month and five weeks, the limit yet tried, after preparation; and, as far as the writer's knowledge extends, a foggy picture (except from diffused light or similar cause) has never occurred.—I am, yours, &c.,

115, *Warwick Street,* ALFRED KEENE.
Leamington, August 9th, 1858.

ANSWERS TO CORRESPONDENTS.

P. Walsh.—You will perceive that we have attended to your suggestion.

Actinism and R. B. James.—See remarks in our leader, as also the letter of "M. J. Soares, Jun."

An Amateur.—The quantity of nitrate of uranium was correctly given by us; it should be two ounces as printed, not drachms as you suppose. The process is undoubtedly expensive at present, but we do not see why the salt mentioned should not be produced at a third of its present cost, if there were a sufficient demand for it.

Confucius.—Mr. O. G. Rejlander, of Wolverhampton was the producer of "Two Ways of Life;" see his description in No. 8, p. 92.

Richard Foxall.—Your French recipes for the calotype and waxed paper processes are neither good nor even are they new in principle; in fact they are such as are picked up any day by mere photographic book makers.

E. T. Hobson.—You will find what you require relative to a positive process in No. 6, for March 15, in the present year, at page 76. Nitrate of uranium is a yellowish-looking crystal, and composed of nitric acid united to the oxide of the metallic base uranium, from which substances it can be readily produced. As it is evident, however, that you are no chemist, you had better abstain for the present from using it, the process as yet being far from perfect.

R. C. Gorens.—We are glad that you found our hint of service. In reply to your present enquiry see answer to "Collodio."

H. H. Hele.—Your communication shall appear in our next.

Received.—"Landscape Photography." Review in our next. "E. T. Hobson." "R. C. Gorens." "George Walker," &c.

AN ARTIST, accustomed to the finishing Photographic Pictures in Sepia, or Black and White, seeks the business of a house requiring first-class work; his pictures are in the very highest style of art, and in Black and White, altogether unequalled: has worked in London and Paris, and undertakes work transmitted by post.

Address, B. Photo., 8, Chatham Street, Dublin.

FOR SALE, CHEAP.

PORTRAIT LENSES AND CAMERAS, by Ross, Voigtlander, Lerebour, Horne, Ottewill, and others, with Binocular and Single Stereoscopic Cameras, and several Portable Folding Landscape Cameras and Lenses, &c. &c., all nearly new, and warranted genuine and correct.

Apply (enclosing stamp), to Mr. Morley, Music Warehouse, 69, Islington Green, N.

NOTICE TO PROFESSIONAL AND AMATEUR PHOTOGRAPHERS.

H. W. GLADWELL, Jun., of the London Photographic and Stereoscopic Warehouse, is open to buy *first-class* Negatives (either Stereoscopic or otherwise), at good prices. He is ready also to supply APPARATUS of the *best* descriptions; CAMERAS of the *best workmanship;* LENSES of the *finest quality;* the PUREST CHEMICALS, and the *choicest* descriptions of PHOTOGRAPHIC PAPERS.

H. W. GLADWELL, Jun., being *Sole Agent* for some of the *best productions*, being also a Manufacturer and Importer, is able to supply Merchants, Shippers, and large Buyers on most advantageous terms.

Warehouse, No. 11, Poultry, London, E.C.

H. FRANCIS, MANUFACTURER OF PHOTOGRAPHIC APPARATUS, 101, Great Russell Street, London, makes all kinds of Cameras, Camera Stands, Head Rests, Rolling Machines, Varnishers, Enlarging Cameras, Copying Cameras, &c. &c.

AMERICAN AMBROTYPE COLLODION.

THIS invaluable compound is now commanding a very extensive sale, producing the most solid and beautiful pictures.

Imported only by J. ATKINSON, Liverpool, and may be had from all Dealers selling his American Goods, in 4 oz. bottles, 2s.; Negative same price.

AMERICAN, FRENCH, AND ENGLISH

WHOLESALE OPTICAL AND PHOTOGRAPHIC DEPOT.

BELLOC'S PRESSURE FRAME.

J. SOLOMON, 22, RED LION SQUARE, LONDON.

PRICE LIST GRATIS, ON APPLICATION.

METERS FOR TESTING THE STRENGTH OF NITRATE OF SILVER BATHS.

MR. FOTHERGILL'S NEW DRY PROCESS,

WHICH GIVES RESULTS EQUAL TO ANY WET, AND SUPERIOR TO ALL OTHER DRY ONES.

Vide communications in *London Photographic Journal*, May, June,—including Report of Council of Photographic Society of Scotland—and July, *Liverpool Photographic Journal*, Aug. 1st, p. 196.

KEENE'S NEGATIVE COLLODION.

THIS Collodion, which receives the approval and recommendation of T. Fothergill and J. Prichard, Esquires, the discoverers and introducers of the above beautiful dry process (also of many others daily), is specially prepared and peculiarly adapted for it, and universally acknowledged more sensitive than, and superior to, all others.—*Vide* Advertisement, August 1st.

Price: pints (16 oz.), 11s. 6d., half-pints, 6s., quarter-pints, 3s. 6d., in separate solutions, with pamphlet of instructions, *free*, or by post for two stamps. Pints and half-pints carriage free to any station on London and North Western or Great Western Railways.

Prepared only by ALFRED KEENE, Chemist, 115, WARWICK STREET, LEAMINGTON.

Agents:—Bath: Walker, Broad Street; Birmingham: Churchill, New Street; Manchester: Pyne, Piccadilly; Rogerson, Albion Street; Norwich: Harpur & Sutton, Bank Plain; Nottingham: Shepperley, Long Row; Woodward. AGENTS WANTED.

A. K. directs attention to the following:—Varnish, no heat required, and has no unpleasant smell, 1s. 6d. and 4s. per bottle. Plate Cleaning Liquid, by which plates can be perfectly cleaned in a few seconds, 1s. and 2s. 6d. per bottle. Negative Bath for Dry Process, 10 oz. 4s. 8d., 20 oz., 8s. 9d., with bottles. Nitrate of Silver for ditto, 5s. per oz. Pure Commercial ditto, 4s. per oz. Pure Pyrogallic Acid, 6s. 6d. per oz. Pure Glacial Acetic Acid, 6d. per oz. Fixing and Toning Bath, 16 oz., 3s. 6d. Chloride of Gold in Hypo—this keeps unchanged, and is very convenient—for making or strengthening ditto, 3d. per grain. All other Chemicals. Papers:—Marion's Albuminized and Extra ditto, 5s. and 6s. per quire. Ditto Helio Velin ditto, and Super Extra ditto, much recommended, 4s. 9d. and 8s. per half quire, and 9s. and 15s. 6d. per quire. Saxony, Turner's, Card Board Mounts, &c. Porcelain Baths, Water-tight ditto, Dishes, &c.

A Vacancy for a well-educated respectable Youth, as Apprentice to a light Retail and Dispensing Chemist.

PHOTOGRAPHY.

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ARE Manufactured expressly for Photographic Purposes; they are bleached by agents altogether inactive with regard to photographic substances, perfectly homogenous in their texture, free from all impurities, and are acknowledged *by the most successful operators* to be the best ever made.

POSITIVE and NEGATIVE, prepared and unprepared.
HELIO-VELIN, plain, *extra* albumenized, and *super extra* ditto.
POSITIVE prepared with SERUM.
NEGATIVE, *extra sensitive*, plain, waxed, and waxed and iodized.
Gummed and Ungummed PAPER and CARDS for mounting Proofs.
MOUNTS on Paper and Card, different shapes and sizes.
PASSEPARTOUTS, Card Board and Papier Torchon, square, oval, and dome shapes.
SCRAP BOOKS, Blotting Cases, Filters, (7 sizes,) &c., &c. ☞ A special list sent post free.

A LARGE ASSORTMENT of STEREOSCOPES and STEREOSCOPIC PICTURES. Monuments, Statues, Bas Reliefs; Groups, coloured and uncoloured, in great variety, &c. &c. Views of the French Exhibition, Crystal Palace, Naples, Pompeii, Germany, Spain, Switzerland, &c. &c. on paper and on glass.

PAPETERIE MARION, 152, REGENT STREET (W.) LONDON.

N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."

The

Liverpool & Manchester Photographic Journal.

New Series. No. 17, Vol. II.—SEPTEMBER 1, 1858.

We published in our last two letters from Mr. Skaife relative to the production of steeographs of military shells, fired from the nortar battery at Woolwich. We then intinated that some singular phenomena were hereby observed and recorded, but want of ime prevented our alluding more particularly o them; we therefore now proceed to give ome more detailed description.

In the first place it will, of course, be nderstood, that in order to take a photograph f such an object as a shell in the act of xploding, and others of a fleeting character, he mode of operating adopted must be that vhich is designated generally as *instantaneous*, out this is far from being the whole truth; hat which is commonly known as an instananeous exposure being very protracted as ompared with the one which we have now nder consideration, less than the fiftieth art of a second of time from the commencenent of a partial exposure to the entire ermination, while certain phases have proably not been subjected to a tenth part of he above-named interval; and yet, short as he time is, that it has an appreciable and *neasurable* existence, is demonstrated palpably o the eye beyond any possibility of question y the photographs taken by Mr. Skaife; for s it is manifestly impossible that an object an be in two places at the same instant of ime, the shell in its flight from the mortar aving left a distinct track of its passage pon the collodion film, necessarily proves he term instantaneous to be a misnomer.

The second point to which we would direct ttention is one which, from the mere perusal of he letters, without inspection of the stereographs, would most likely be overlooked. In iring a shell from a mortar, of course a coniderable amount of smoke is generated, and his smoke presents to the eye a continual hange of outline. Now, it appears that at a articular moment of the smoke's dispersion t presents a *striking resemblance to a human ust*, which is clearly perceptible in the phoograph, and strikingly so when viewed stereoscopically. This is no accidental peculiarity, or repeated experiment constantly shews a similar result; but what is perhaps still more remarkable is, that the time during which this singular resemblance exists is so extremely fleeting, that the eye is unable to detect the fact in the smoke itself, though the collodion film scarcely ever fails to record it.

Here, then, is a new application of our art, which appears to open up a most extensive field for research, by which facts too fleeting for the eye to take account of may still be recorded. This, by the way, is the second link of the chain, for, if we are not mistaken, some phenomenon was observed by means of a photograph during the last eclipse of the sun that had altogether escaped visual notice.

We also fancy that we can trace in these experiments the germ of a highly valuable hint in manipulation, to which we shall probably hereafter refer.

Very recently, an interesting case of the use of photography in the detection of crime has been made public. The body of a child that had met its death by drowning was discovered in the water, with a heavy stone attached. The authorities bethought them that, in order to preserve the features of the corpse for future identification, it might be worth while to have the aid of photography. The idea was acted upon, and discovery of the culprit subsequently followed.

We mentioned in our last that M. J. C. d'Almèida had contrived to exhibit stereoscopic subjects upon a large scale by the assistance of magic lanterns, and in such a manner that the images upon the screen were capable of examination by many persons at the same time. We now purpose describing the *modus operandi*. Ordinary stereoscopic transparencies are employed as slides in a pair of lanterns, and the images are superposed upon a screen not exactly coinciding part by part (that being an impossibility, as they necessarily differ somewhat in detail), but as nearly so as they can be made to do, the nearest objects being those most in agreement. It is scarcely necessary to remark that a considerable amount of confusion is the consequence of this proceeding. In order to disentangle the resulting chaos, and to allow of each eye perceiving only its own proper image, two differently coloured glasses, having no portion of the spectrum in common, are interposed respectively between the slides and the source of light; those adopted by M. d'Almèida being red (crimson) and green. The images projected upon the screen will therefore partake of the colours of the glasses, the one being red, the other green. Each spectator is supplied with a pair of spectacles furnished with plain glasses, one of each of the colours employed, by which contrivance the red image is obscured to the eye covered by the green glass and *vice versa*, thus each eye being allowed to view its own image alone.

A second method of operation is by making use of a revolving disk, with apertures in the circumference so arranged that the rays of light are allowed to escape from each lantern alternately, thus presenting the pictures adapted for inspection by the right or left eye in regular succession. In order to perceive the effect of solidity a similar disk is made to revolve in front of the spectator, at *precisely the same speed* as that before the lanterns, and with a corresponding number of openings, allowing thereby vision from each eye in rapid succession, but *not* at the same moment. Now, as the impression upon the retina *remains* for a given time after the object is really withdrawn from sight, the visual effect is not intermittent, but continuous; but as each eye can only view its own particular image, the stereoscopic effect is fully attained.

There is no reason why considerable numbers of revolving disks should not be set in motion at the same rate of speed by means of spindles driven by a band common to the whole, and thus enable an equal number of spectators to enjoy the pleasure of viewing the same subject at once; of course the number would be more limited than by the former described method, though probably the effect might be superior.

We have been favoured by Mr. Rejlander, of Wolverhampton, with a further portion of the "fruit of his brain" in the form of some photographs of great interest and beauty. In the first place, we have an interior of a cottage with figures, entitled *The Scripture Reader*. The central figure is an aged dame, with distaff and spinning-wheel, the latter at rest, with the woman's right hand reposing upon it, while she is attending to the remarks of a young girl seated in front, and who has been reading from the "book of life" open upon her knee. One finger of the latter indicates the place where she was reading just before turning to enforce some passage of more than ordinary interest. On the left hand of the picture is an old man seated, with his chin resting upon the hands supported by his staff, in an attitude of deep attention. This figure is particularly good. In the centre of the foreground is a shaggy dog snugly curled up for a nap, whilst in the back ground is seen a bed, a Dutch clock, a couple of framed pictures, and a few other natural accessories, the whole being lighted up from a window on the right side. The subject is well conceived, and, with the exception of some slight constraint of attitude in the figure of the girl reading, well carried out, the general air of *repose* being a prominent feature in the composition, and while the subordinate parts are in perfect keeping, they are, as they should be, unobtrusive.

There is one test of merit that we have generally regarded as an infallible one, viz: that, if it be present, the composition wins upon the beholder by repeated inspection, and this we find in the picture before us.

A girl from a larger group, illustrative of the "seven ages," is very artistic in the *pose*, and would form a valuable study for portrait painters. She is so arranged that while the features are presented in profile, the figure is somewhat turned towards the spectator, and has nothing of the stiff and absurd effect generally noticeable in miniatures in profile. There are two other valuable studies, being variations of one subject, a female at work with the spinning-wheel, which is in rapid rotation. In one the background is dark coloured, and the spokes of the wheel being somewhat moulded, give rise to the appearance of a series of concentric rings rendered visible by the light reflected from their surfaces whilst in motion. In the second, an open book is placed behind the wheel, and the variation of pictorial effect is rendered thereby somewhat startling, the concentric rings seen in the former picture have entirely disappeared, except those formed by the *rim* of the wheel, while the print on the page behind is distinctly visible, rendered only a little less brilliant towards the centre. The strong light reflected from the white page has entirely obliterated *to the eye* the more feeble reflection from the revolving spokes. This fact should teach us a lesson in operating, to which we may refer on a future occasion. We may pen a few more words of remark applicable to both pictures. The hank of flax upon the distaff is sharp and clear, while the thread upon the rotating bobbin exhibits that peculiar mistiness that unmistakeably indicates rapidity of movement, and the same remark applies to the connecting piece between the crank and treadle. Subjects of this class deserve a place in the portfolio of every artist, and would repay their cost a thousand fold.

We have received from Mr. Widger, of Torquay, several well executed stereographs of some of the beauties of Devonshire, including various scenes at Lynton and Lynmouth in the north, Dartmoor, Babbicombe, Torquay, &c., in the south, which forcibly recal some pleasant pages of our experience of wanderings in the west.

We desire to call the special attention of our readers to an advertisement which appears in the present number, intimating the intention of the Leeds Photographic Society to hold an exhibition of photographs during the ensuing meeting of the members of the British Association for the Advancement of Science, to be held in that locality in the present month. Works intended for exhibition should arrive there not later than the 15th inst., and are to be classed under three heads, as follows, viz. :—

1st.—Photographs illustrating the scenery and characteristic buildings of Yorkshire.

2nd.—A general collection of photographs.

3rd.—Specimens illustrating various *processes*, with reference to the process itself, rather than to subject or artistic merit.

The following are the rules laid down :—

1.—Photographs must be either framed or mounted on stiff card-board, and must be forwarded, *carriage paid*, before the 15th September, directed to "*The Leeds Photographic Society, Philosophical Hall, Leeds.*"

2.—The Name and Address of the Photographer, the Subject, and the Negative and Printing Processes employed, must be written on, or attached to, the *back* of the mount or frame.

3.—No Coloured Photographs will be admitted, unless they are accompanied by untouched copies; and no more than three Portraits by the same Photographer can be received, unless they are illustrative of *process*. No photographs will be sold at the Exhibition.

4.—The Society will not be responsible for any loss or injury which may happen to the Photographs, and they do not pledge themselves to exhibit all that may be sent.

We strongly recommend photographers who have been working at special processes, whether as regards negative or printing, not to let this opportunity of comparing notes pass away unheeded.

At the South Lancashire Assizes, recently held at Liverpool, the following hint to the police was thrown out. In a case which came before the Hon. Chief Baron Pollock, in the Crown Court, great difficulty was experienced in ascertaining the distance and situation of certain habitations and outhouses which materially affected the case. His lordship, several times during the case, commented strongly on the loose manner in which the case had been prosecuted by the police of Manchester, where the circumstances in question took place, and said it was the duty of the police in all cases to make themselves acquainted with the situation of the place where the offence was committed, and to ascertain all the facts with regard to the condition of the prisoner. He thought if some one had been ordered to take a photographic view of the place, about which questions had been asked, the jury would have been materially assisted in coming to a conclusion.—Mr. Sowler, Q.C., who was prosecuting in the case, said the suggestion of his lordship was a valuable one, and would no doubt be attended to.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

At the monthly meeting of the Chorlton Photographic Society, held at the Chorlton Town Hall, August 11th, 1858, the Vice-President in the chair,

A discussion relative to the testing of light for photographic purposes was carried on, and it was thought desirable for as many members as possible to make experiments on the subject, and report the results at the next meeting.

An instrument was exhibited by the Secretary for comparing the intensity of a shadow produced in any given light, with a scale graduated by various shades of Indian ink, so that, with a shadow equal in intensity to the *darkest* shade of the scale, a minimum of exposure would be required to produce a given effect, the time, of course, increasing in regular (?) gradation as the intensity of the shadow decreases.

A discussion on the effects produced by the state of the winds as regards exposure was also carried on, and it was considered that S.W. was the best wind for photographic purposes, and East about the worst.

The Chairman thought that electricity had much to do with the matter.

Mr. Rogerson said he had, twelve months ago, exposed a plate connected with a galvanic battery in the camera, and could notice nothing more than the ordinary effect produced.

A wire levelling stand, made on the principle of the tripod at a cost of sixpence, was exhibited.

A substitute of easy application was suggested by the Chairman, by floating upon water a piece of buoyant wood of dimensions a trifle smaller than the plate to be developed, and sufficiently thick to project above the fluid.

Thanks were then voted to the Chairman and the meeting adjourned.

DRY COLLODION PROCESS.

By P. C. Duchochois.

The following Dry Collodion Process is from *The American Journal of Photography:*—

Every photographer knows how difficult it is to find a collodion suitable for the collodio-albumen-gelatine, or metagelatine processes—*id est*, a collodion giving a film neither tenacious nor contractible, but very porous, friable, and adherent. Old collodions are recommended as possessing such properties, but, besides they are often too much iodized for that purpose, it is to be remarked, that if the collodions prepared with alkaline iodizers answer very well, those iodized with metallic salts (cadmium generally) do not always work as well; for, although the collodion becomes coloured, the film, however, keeps for a long time all the characters of the collodion one or two weeks old.

Believing from observations that the alkaline and metallic bases re-acted on pyroxiline in different manners, desirous to explain that fact, and also to have a formula by which I can surely prepare good collodion for the dry process, I made the following experiment to study the action of alkaline bases in collodion.

To a plain collodion giving a thick strong film, very contractible and easily lifted up in long rays, I added liquid ammonia; immediately it was troubled and after a few hours gave a thinner film, very porous, rotten, and opaque; it took twenty-four hours to clear up, became of a fine amber colour and left a white precipitate of decomposed pyroxiline (cellulose). Caustic potash and caustic baryta, in small quantity, acted nearly in the same way. Hence alkaline bases re-act powerfully on pyroxiline; *it is disorganized, and a part is decomposed.*

This is very important. It explains—1st, The great fluidity of collodions prepared with alkaline iodizers, (particularly when iodide of ammonium is used) and partly their instability. 2nd, Why those collodions give a film with less body, and the causes of unsuccessful results from it. 3rd, The advantage of alkaline collodion for Mr. Taupenot's and Norris's processes, and generally for all dry preparations on collodion. It will be observed that the amount of ammonia added to the plain collodion, ought to be proportioned according to the kind of pyroxiline, that is, to the more or less tenacity or contractibility of the collodion; and that ammoniacal collodions cannot support as much iodizer as ether ones: four grains to the ounce is a good proportion for the collodio-gelatine process, and two grains are enough for the collodio-albumen.

But since it is easy to prepare a collodion with all the proper qualities for dry preparations, I have adopted a truly dry collodion process (without any kind of preservative coat), which is very sensitive, and has the advantage of great simplicity. The preparations are—

Collodion.

Ether conc.	6 fl. dr.
Alcohol, 95 deg..	2 ,, ,,
Seely's pyroxiline	5 grains.
Iodide of ammonium	4 ,,
Liquor ammonia...........	3 drops.

Silver Bath.

Water	1 fl. ounce.
Nitrate of silver...	27 grains.
No. 8 Acetic acid	2 drops.

*Developer.**

Gallic acid	1 ounce.
Alcohol	4 ,,
No 8 Acetic acid	1 drachm.
Camphor................	15 grains.

After sensitizing, immerse the plate in water for three or four minutes, and having washed it with distilled water, let it dry in the dark.

To develope: first wet the collodion film with water, and then spread upon it a mixture of one drachm of the developer, and three or four ounces of water; afterwards add a small quantity of a solution of nitrate of silver, at three per cent., to strengthen the negative. Fix with hyposulphite of soda.

As it has been said, this process is very rapid, and the failures often arise from an excess of exposition: if it was too long the sky does not blacken; the picture is too equal, and does not take enough intensity in the high lights.

N.B.—I will, by further experiments, study the action of pyroxiline on the metals, zinc, iron, cadmium, and their oxides.

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* Modification of Mr. Scheurer's Developer, published 1850.

ALBUMENIZED COLLODION PROCESS.

By M. Gatel.

The following process for Albumenized Collodion has been well reported of by a Committee of the French Photographic Society, as a modification of that introduced by M. Taupenot:—

This process has nothing in common with Taupenot's but the albumenization of the collodion, and possesses the advantage of an impressionable film of perfect solidity during the developement of the image and its fixation; thus obviating the liability to blistering which so frequently appears by the ordinary methods.

Take of albumen...............	20 oz.
In one-third of this quantity of distilled water, that is	6 oz. 5 drms.
Dissolve iodide of ammonium	192 grains.
Then add solution of tincture of iodine	3½ drms.

Pour this iodized water, little by little, into the albumen, beating it with a wooden fork.

The tincture of iodine is of the strength of twelve grains of iodine in flakes to a fluid ounce of alcohol.

The albumen having been well frothed is allowed to stand for from 12 to 15 hours.

Take simple collodion	1 oz.
Add iodide of ammonium ...	2½ grains.
Iodide of cadmium	2½ ,,
Solution of proto-iodide of iron	15 minims.

Allow it to settle.

The solution of proto-iodide of iron is thus made,

Iodine in flakes..................	72 grains.
Iron filings	120 ,,
Distilled water.................	1 oz.

Heat it till it becomes discoloured, filter and evaporate the liquid, stirring it with a long nail until it acquires the consistence of syrup, then add two ounces alcohol and six drachms of acetic acid, and filter. This solution will keep good to the last.

When about to prepare the plates, decant the albumen and the collodion.

Clean the plates with tripoli, moistened with alcohol, ten parts, liq. ammonia one part.

Collodionize the plates in the ordinary way, sensitize in a bath of nitrate of silver forty grains to the ounce of water, and wash perfectly with distilled water, drain slightly, and coat with the albumen solution, and allow it to dry for twelve or fifteen hours.

To sensitize the albumen make a bath of—

Distilled water	3 oz. 6 drms.
Dissolve and add fused nitrate of silver	2 ,, 4 ,,
Acetic acid	1 ,, 3 ,,
Alcohol	30 oz.

Let it remain at least twelve hours, then filter.

The plates having been prepared as above directed, and being *very dry*, are to be plunged for from fifteen to twenty seconds into this alcoholic silver bath, then washed in a dish with alcohol, and lastly with distilled water. They are then to be allowed to dry, and not to be used for from five to six days after being excited, in order to obviate variation in the requisite exposure, which would not be constant if used before they were perfectly dry.

Plates thus prepared can be preserved for a very long time after excitation, and are extremely sensitive to the action of the light.

Develope with pyrogallic and acetic acids, adding a few drops of a solution of nitrate of silver, ten grains to the ounce, when the image begins to appear.

If, in developing, any deposit forms on the surface, it may be removed by lightly rubbing with a piece of cotton without fear of injuring the film; then, after being copiously washed with water, the developement may be continued until complete. Fix with hyposulphite of soda.

It will be at once observed that one of the principal novelties introduced, is the use of alcohol instead of water for the sensitizing bath for the albumen; and, although this adds somewhat to the expense, it is not of so much importance as the necessity for its use in the subsequent washing of the plate, which will, we fear, be a bar to its general adoption in this country, unless, indeed, it will be found practicable to substitute *methylated* spirit for the pure alcohol. We hope that some of our friends may be induced to give it a trial.

The following extract from the report of Messrs. Davanne, Bayard, and Fortier, upon the process may offer some inducement:—

"By his process M. Gatel obtains a sensitive film less liable to blistering than that of M. Taupenot's. He has made no change in the preparation of the albumen with the exception of the addition of a small quantity of free iodine; the collodion is made in the ordinary manner, but to this is added a small quantity of proto-iodide of iron and of acetic acid.

"Although the influence of the proto-iodide of iron relative to the adherence of the sensitive coating has not been rigorously demonstrated, we know, nevertheless, that the proto-salts of iron seem to render the collodion film more tenacious, a fact of which it is sufficiently easy to satisfy ourselves; it is therefore possible that the proto-iodide of iron acts in a similar manner under the present circumstances.

"The most considerable variation, and the one that exercises the greatest influence on the solidity of the film consists in the employment of alcohol in place of water for the formation of the sensitizing bath of aceto-nitrate of silver. It is known that alcohol coagulates albumen with considerable energy; it is probable that, under the double action of nitrate of silver and alcohol, the albumen is subject to a coagulation more regular and more complete, and gives, in consequence, better results.

"We have thought that, after excitation in an alcoholized bath, it might be possible to dispense with the use of alcohol for washing, and that alcoholized water, or pure water alone, might be substituted, provided that the necessary precautions be adopted for covering the plate uniformly; but experiment has proved to us the efficacy of the alcoholic ablution.

"All the proofs that we have made, or seen produced, by this process have been *perfectly free from blisters;* and we therefore consider it a useful modification of that of M. Taupenot; we therefore propose to accord thanks to M. Gatel for his communication, and to insert this report in the *Bulletin.*"

ALBUMENIZED PAPER NOT DISCOLORING THE SILVER EXCITING BATH.

By M. L'Abbe Laborde.

(From Cosmos.)

Formerly, the practice of coagulating, by means of a hot iron, the albumen on the surface of prepared paper was advised; latterly, however, this operation has been omitted, in consequence of the fact having been observed that the submission of the film to the action of nitrate of silver in the sensitizing part of the process was sufficient to render it perfectly insoluble. However, the albumen in becoming coagulated under the influence of the nitrate of silver, allows of *the solution in the latter* of an organic matter which decomposes it gradually, and finishes by rendering it unserviceable. It becomes, therefore, necessary either to make a fresh silver bath or to decolorise by the use of animal charcoal or kaolin.

I employ a means which in coagulating regularly the albumen encloses and retains in it the organic soluble substance, so that it is possible to sensitize a large number of sheets of albumenized paper without sensibly colouring the bath of nitrate of silver. The following will explain it:—

A metallic vessel, sufficiently large to contain conveniently a sheet of the paper employed, is filled with water, the latter being heated almost to the boiling point, then a sheet of paper previously albumenized, and *very dry*, is floated upon the water, *albumen side upwards*, taking care not to let the upper surface become moistened. After remaining about half a minute the sheet is to be removed and hung up to dry, and can be replaced by another on the water.

When a hot iron is employed to coagulate the albumen, it is not easy to regulate the operation; if the iron be too hot the albumen becomes yellowish; if it be not hot enough the coagulation is not effected; and even if the temperature be correct the operation may still fail from not applying it equally all over.

A paper well prepared ought to bear the following proof without losing any of its gloss, viz.: plunge it in water for a quarter of an hour, or rub it well on the surface with a moistened sponge, then dry it. Paper prepared with a hot iron does not always resist this test, after being dried it presents here and there parts that are dull or less glossy, which indicate an irregular coagulation.

The same process can be employed for varnishing positive proofs upon plain paper; after it has been finished and dried perfectly it may be floated upon a clean surface of unsalted albumen, dried, and then treated as albumenized paper.

I endeavoured to render the operation more expeditious by floating the paper upon hot water while the albumen was flowing and still moist; but the heat gave rise to the formation in the film of albumen of an immense number of small gaseous bubbles, which did not disappear on drying.

The paper ought to be perfectly dry, and put under a press before the operation, for it is extremely difficult to float it upon hot water when it is curled up.

THE PHOTOGRAPHER.

No. 2, New Series.

(Concluded from page 204.)

From Geo. C. Warren's Paper.

I fancy I remember reading in some account of the dry albumen process, now termed Fothergill's, that several substances had been used in lieu of albumen, such as dextrine, gum, honey, &c.; now I cannot get a satisfactory negative with the albumen, the development is so very weak that the picture is good for nothing. I tried the honey process, both with old and new collodion, washing the honey off the plate, and setting aside to dry. The following day I exposed this *dry* plate, and was gratified to find a most excellent negative, giving very fine half-tones and good density in the sky and high lights; the only drawback was that the film of collodion seemed very liable to move in a body off the plate. I must say I have succeeded well with the gelatine solution as given in my last, and I have also worked quickly with it in comparison with the albumen preservative, but what appears to me rather singular is, that having obtained another sample of collodion (old) I could not get a picture under three times the exposure; the only difference appeared to be that the first sample was *very old*, and had lost its property of forming a strong film—I mean such a film as you could lift from the glass. In my last sample, although a twelvemonth old, it had retained this quality, and I suspect this to be the cause of the diminished sensitiveness.

Mr. Rimmer may, perhaps, be induced to try the washed honey. The results will be very clean, and any kind of collodion may be used. I should think that if the plates were coated with plain albumen first the film of collodion would stick tight enough, and to avoid the bother and trouble of coating the plates in the usual manner, I think a quantity of albumen, after being beaten up to a froth and allowed to settle, might be poured into a bath and the plates carefully dipped, one after the other, into it, and stood up to dry free from dust.

The carbon print is, I think, very good for its age; in fact it is quite as good as the early photographic prints from calotype negatives, and I certainly think it worth knowing, and shall gladly forward my shilling to Mr. Sutton for the pamphlet, notwithstanding the criticism in the *London Photographic Journal*, which, by the bye, is rather a queer piece of criticism altogether. In his statement about photography on wood, the critic, as "one of the public," says, "but successful as it may appear it is not equal to some attempts we have seen," and "we do not know whether Contencin's method meets this difficulty" (of preventing the solution penetrating the wood), "but a recent experiment which we had the pleasure of inspecting does so with great success." I think it rather unfair to make a comparison and speak so highly of a process that has no representative in the exhibition without becoming acquainted with what Contencin's method really does. I happen to know Mr. Contencin and also his process, and can state that blocks prepared by him are put into the hands of the wood engravers and give great satisfaction; the solutions do not penetrate the block, and the artist has a white ground to work on, in the same manner as an ordinary drawing on wood.

The samples of collodionized paper are capital, but who enclosed them? How were they done? Should not each member when enclosing any pictures put his initials to them?

In this town there is an artist who knows little about photography, but has taken out a patent for "Improvements in Photography; a method of copying pictures of any size without the lensular defects, &c., &c., &c.," *ad infinitum.* I have seen several of his productions and can only say they are very soft in the half-tones, but the shadows and high lights hard and scratchy. After all he does not give a photographic copy of the picture except in one sense. His method, as most of you are aware, is to *paint a negative* on glass—not use a lens or camera at all!!! and after that print his negative on chloride paper. His softness is gained in a similar way, or I may say the same way as that by which many persons have obtained a very soft and strange looking positive, viz., by printing the negative with the plain side of the glass or negative next the sensitive surface of the paper. I think he is on the wrong tack; the better way would be to take an enlarged positive as enclosed, then touch it up, from this take a negative and then his positive prints.

Mr. Jones must bless his stars that Sisson's turpentine waxed paper process has appeared illustrated with two stereographs; it will bring many disciples, but I think part of the secret is in cylindering the paper. I should also think that if the negative were cylindered after waxing it would be improved, and sharper impressions obtained.

The difference produced in positives on paper is quite surprising.

I have made a few experiments with the nitrate of uranium, but with poor success. The prints appear very weak, especially those developed with gold. Have any of you experimented in this line; if so, what sort of pictures have you obtained? G. C. W.

From James Archer's Paper.

The *Photographer* took me quite by surprise, and unprepared with any subject, as I almost began to think it would never come round.

However, to make a start, I will confess to a fervent admiration for *wet collodion*, believing it to be, for all important artistic purposes, *the* process. It has, notwithstanding, its drawbacks, and these are by no means *light* ones,—I mean for landscapes. I have for some time been trying to obviate the difficulty by means of a developing camera, but, am sorry to say, fruitlessly. The risk in coating and exciting plates,—the extreme uncertainty of, and want of command over, the development,—liability of the film in all stages to damage,—and last, but not least, the nasty, disgusting messes that frequently occur,—will, I think, always be found impassable barriers to this system becoming general. A print of the camera set up (a very poor one, the negative being fogged) will be found in the pocket. I am now turning Roger Fenton on a small scale, with *tent*, &c. Can any of the contributors give a suggestion as to the best form of tent to employ for working 9×7 plates?

With regard to printing, I noticed a remark by Mr. Sutton, in the *Notes*, some little time since, to the effect that prints immersed in an acidulated water bath (hydrochloric acid, I think) had, according to his experience, acquired a considerable degree of permanence. A short while ago I tried the experiment of immersing an ammonio-nitrate print, *without washing* in a bath of hydrochloric acid, two or three drops to the ounce. Immediately on removing it from the hypo it instantly became *clear*. A little of the half-tone was dissolved, but it left *creamy* whites, and shadows of an agreeable light brownish *purple*. I have not yet applied any destructive tests to ascertain its permanence.

The carbon print is very interesting, and, I think, full of promise for so *youthful* a process. One good feature observable is the purity of the lights. It is to be hoped that Mr. Sutton's shilling plan will succeed in purchasing the process. The apparent want of half-tone and depth of shadow would doubtless soon be obviated if photographers could bring their experimentive energy to bear upon the subject.

Notwithstanding my avowed preference for wet collodion, Mr. Rimmer's print of *Lichfield Cathedral*, taken from a honied plate, I must own, speaks strongly in favour of a preservative process; the detail in the shadows is beautifully given. Would he kindly give his *modus operandi* in an early paper?

J. A.

From G. Shadbolt's Paper.

In thanking you for your welcome, I must hasten to disclaim one of the honours that you have attributed to me.

It is true that I had been long engaged in trying to do away with the dark tent system, but the *first* effective blow is due to Messrs. Spiller and Crookes, who brought out their nitrate of zinc process, and in it threw out a suggestion which enabled me almost immediately to strike the second.

The hint to which I allude was that of sensitizing the plate first, and then adding something to preserve it; whereas, I had been striving to do both at one operation, but without any satisfactory result, up to the time of the publication of their paper in the May number of the *Philosophical Magazine*. I shall follow the lead of writing a little gossip, principally in reply to what I already find before me in the *Photographer*. The word "micro-photograph" originated, I believe, with myself, and was applied, I think, correctly, to very *small photographs*—not to photographs of small *objects*, which would, more correctly, be "photo-micrographs;" but probably a convenient word for this class of subject, as well as for *enlarged* copies generally, would be "mega-photograph," or perhaps we might shorten it to "megalograph," or even "megagraph." If my brother contributors will express their opinions upon the claims of these various suggestions, I may possibly be somewhat surprised when next the *Photographer* comes round to me.

Mr. Taylor is at a stand still for want of a "structureless" collodion; this is easily obviated; there are several in the market, amongst which I can at once mention Hardwich's and Thomas's, and several others: but there is really no difficulty in producing it if the pyroxiline be made, with the mixed acids, at high temperature, and the alcohol and ether *nearly* free from water, the former being the most difficult to obtain strong enough for the purpose. I prefer, also, iodide of cadmium for the iodizing material, though this is merely a matter of convenience as regards keeping properties—not a necessity to success.

I am sorry to say that I do not share the favourable anticipations of the *carbon* printing process, as expressed by Mr. Jas. Archer, for the reason that I have already given in the *Liverpool and Manchester Photographic Journal*, viz., that all the proofs from genuine photographic negatives — not being mere copies — are almost entirely devoid of half tone—the most fatal of all failings.

Immediately after Mr. Pouncey exhibited his proofs at the Photographic Society, I published in the journal already cited the two suggestions following, viz., that they were produced either by means of paper coated with the bitumen of Judea, as used by Nièpce, the parts unacted upon by light being subsequently dissolved out; or by a mixture of gelatine, bi-chromate of potash, and colouring matter which (as it appears from *Photographic Notes*), turns out to be a part at least of the truth.

Now the difficulty lies here, viz., that the action of the light, when sufficient, renders the gelatine *insoluble*; but when insufficient, it is not *partially* INSOLUBLE, but simply soluble *more slowly* than the rest, hence the amount of half tone (if any) would be dependent principally upon the skill in washing, which would be a very delicate operation to free the lights from every trace of colour without destruction of the middle tints.

It is upon these grounds that I think unfavourably of the process; and though it goes very much against the grain with me to discourage any attempts at so laudable an end as the production of photographs in carbon, it would neither be justice to my brother operators or to the photographic art, to encourage that which I really and truly think must end in failure. If Mr. Pouncey had succeeded in producing *satisfactory results*, and chose to demand pecuniary remuneration for making the process public, he would have every right to do so, and I see no reason why the public should object to pay for what they want, and cannot get without payment; but if those results are, as I contend, *very imperfect*, I cannot see the policy of paying for that which is absolutely useless in its present state, and which, if it be even possible to improve enough to make useful eventually, may, upon precisely the same grounds, have to be paid for again to the improver. No one would be more gratified than myself were the present mode of printing to become reasonably superseded.

Although pleased to find that some of our friends find entire satisfaction in the honey process, I think that they are underrating some of the advantages of a perfectly *dry* one. I will, therefore, give the details of a mode of working Dr. Norris's process that I have found very successful, and have also been confirmed in my recommendation by a friend, to whom I communicated this method.

I shall call it Dr. Norris's process, *viâ* honey.

Procure some collodion that is somewhat *gelatinous* in character—whether old or new is not material. That containing plenty of pyroxiline, and iodized with iodide of cadmium, is what I prefer; it forms a thick, *spongy* kind of film, and about one drachm to one drachm and a quarter is consumed in coating a plate nine inches by seven inches in dimensions. This will be a guide as to the requisite thickness being attained.

Having coated the plate, allow it to set well before immersion in the sensitizing bath, as by this means the liability to slip off the plate in subsequent operations is very materially lessened.

After sensitizing, on removal from the bath, the plate is to be well drained for a minute or two, and then covered with honey syrup, pouring it on along one edge, and, as it were, driving the small quantity of free nitrate of silver still remaining, before it—the plate being kept continually moving until the honey lies flat and even when the plate is held in a horizontal position; allow it to remain thus for about a couple of minutes, then pour off and drain well; this, so far, is nothing more nor less than the honey process. The quantity of syrup required for a 9 × 7 plate is about one fluid ounce.

The next operation is to place the gelatine preparation in a bath of hot water to liquefy, to which end, standing the bottle containing it in a vessel of hot water answers very well. The gelatine solution consists of gelatine ten grains, water seven drachms, alcohol one drachm; filter. While the gelatine solution is in the water bath the syruped plate is to be washed thoroughly under the tap, letting the stream fall on to the middle of the plate, and inclining the latter towards each edge in succession. It will be known to be sufficiently washed as soon as a drop drained from the plate, and let fall on the tongue, tastes neither metallic nor sweet. It is now to be drained closely for about half a minute and then flooded with the gelatine solution in exactly the same manner as previously with the syrup, observing only that it need *not* be allowed to return over the plate, once passing being quite sufficient, and indeed better than if passed over again. The solution should be poured on *quite hot* (that is say about 150°), and carefully, so as to avoid *bubbles*, which, if accidently formed, are removed most easily by blowing upon them; if allowed to remain they are apt to produce spots.

Drain the plate very closely for about five minutes, and then place it in a horizontal position, collodion side upwards, to dry. If prepared over night it will be ready for use the next day, but will keep, if properly protected from the light, a considerable, probably an indefinite time, either before or after exposure.

Expose in the ordinary way, giving from two to six minutes in bright weather, according to size of diaphragm and nature of subject.

Develope in a horizontal dish with pyrogallic acid in distilled water, adding a *few drops* of the sensitizing bath, no acetic acid; but if the developer turns black very quickly a few drops of lemon juice may be added to a fresh quantity. Gallic acid may be employed to develope with if preferred. The strength of the former about half-a-grain to each ounce of water; of the latter as much as will dissolve in it in a few minutes. When sufficiently developed, first wash copiously with water, then fix with solution of hyposulphite of soda, say equal quantities of a saturated solution and water; finally, wash well and dry. Cyanide of potassium should *not* be used for these plates, as the *intensity* is materially lessened by it.

I will now add a few remarks explanatory. If the collodion when so thick is troublesome to manipulate, the addition of about ten minims of chloroform to each ounce of it will make it flow more readily; but, of course, if it does not then flow, it must be slightly thinned by the addition of a little ether.

For landscape work in hot weather, I fancy the addition of about half a grain of bromide of cadmium to each ounce of collodion an improvement.

The use of the syrup is partly to search out, as it were, all the nitrate of silver, so as to avoid stains; but in addition to this, it enables one to prepare plates for the honey process without any fear of loss of one's labour; because, if after preparation the weather should prove unfavourable, or the plates be not used from any other cause, they need not be wasted, but can be readily converted into dry plates and stored for future use. Furthermore, if it be intended to prepare dry plates from the beginning, any syrup will do, whether in good condition or not—that is, whether fermented slightly or that which has been used before, as the washing gets rid of the impurities from the plate. Lastly, the same syrup and gelatine solution will do for several plates, say three or four, if prepared immediately after one another, provided the gelatine be made hot between each time of using, that is between each plate.

Plates prepared as just directed answer very well for stereoscopic transparencies by direct contact with the negative in the pressure frame, the exposure being from one to ten *seconds*. In this case the glasses used for both negatives and proofs should be *very flat*.

July 12th, 1858. GEO. SHADBOLT.

RECIPE FOR A WHITE VARNISH.

By EDWARD THOMAS HOBSON.

Methylated Spirit..................	1 ounce.
Gum Thus	10 grains.
Gum Sandrac......	15 „

Dissolve, and filter through sponge.

REVIEW.

Landscape Photography; or a complete and easy description of the Manipulations and Apparatus necessary for the production of Landscape Pictures, Geological Sections, &c., by the Calotype, Wet Collodion, Collodio-Albumen, Albumen, Gelatine, and Waxed Paper Processes, by the Assistance of which an Amateur may at once commence the Practice of the Art.

By JOACHIM OTTE, F.G.S.

(London: Robert Hardwicke, 192, Picadilly.)

The first announcement of this work in all the redundant glory of its grandiloquent title fairly took away our breath, then we caught ourself wondering what could possibly be the nature of the magical power that should fulfil the promises set forth, until the words of one William Shakspeare occurred to our mind—"I can call spirits from the vasty deep.

Why, so can I or so can any man; *but will they come when you do call for them?*" Now it may be quite true that by the aid of this work the amateur may *at once commence* the practice of the art; we have considerable doubt, however, whether, without further assistance, he will ever *finish it;* not that this remark applies only to the book under consideration, for we are of opinion that a single hour's ocular demonstration is worth a week's reading upon the subject, no matter how good soever it may be. Had the promises been less abundant the work would, in our judgment, have been more valuable, as the design of it is conceived upon perfectly sound principles.

In teaching a child to speak we do not at first cause him to become acquainted with letters and spelling, but *words* and their connection with things. In teaching an art, especially that of photography, we would act upon the same principle—first, give instruction in manipulatory details, then explain the reasons for them, and come, lastly, to the preparation of materials. This is the course attempted in "Landscape Photography;" the tedious introductory details usually found in treatises of the kind are omitted altogether, and the directions, as a rule, are reduced to their simplest expression; but we are bound in candour to add that the difficulties are far too lightly regarded, and each unconscious student, if he should put implicit faith in all that is set down for him, will certainly come to the conclusion that he must be a peculiarly obtuse individual.

We deem it a great mistake to blink the question that failures, neither few nor far between, are almost sure to beset the tyro; it is so in almost all other pursuits, and why photography should be exempt we cannot at all perceive. Why, then, not admit the fact, and by being forewarned become forearmed?

We cannot either agree with many of the *opinions* expressed by the author; for instance he says, "Neither will the collodio-albumen, oxymel, or any of the so-called preservative processes for a moment bear comparison with the calotype; because, after all the trouble in preparing the plates, the operator is always encumbered with heavy glass negatives and dark boxes; the exposure is long and the prints themselves are too often entirely without half tones." These are somewhat startling statements to an experienced hand. We cannot perceive that the *trouble* of preparing a glass plate is greater than that of iodized paper, and if it be contended that the latter can be *purchased* ready prepared, we answer, so can the former; while, as regards the want of *half-tones,* that a calotype negative excels a glass one if both be good, is certainly a novel doctrine.

It is clear from the above that our author is a thorough-going calotypist, and this he freely admits, but at the same time gives instruction concerning the other processes named in a style precisely similar to that he adopts for his favourite branch of photography.

CORRESPONDENCE.

☞ *All* Editorial *Communications,* Books for Review, *&c., should be forwarded to the Editor,* George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street Liverpool.*

We are requested by Mr. Burnett to insert the following notes in reference to his letter of the 23rd March, which appeared in our No. 15, for 1st August last.

1st Note, referring to page 94, line 13, second column, after the words "ferric processes," in letter of March 23rd:—

By a later and more careful perusal of M. Nièpce's paper, I was surprised to find that I was mistaken in supposing M. Nièpce to have been ignorant of the sensitiveness of ferric papers, which, on the contrary, I now find to be expressly alluded to in it, though strangely enough only to *contrast* them with the uranic papers. I must now suppose, either that M. Nièpce has made a fresh and independent discovery of the ferric as well as of the uranic papers, and has, from want of time, not yet hit on the fact of their de-oxidation, or else, that he has some good reason, not yet communicated to the public, for his ignoring of all chemical change on such papers before their development.

2nd Note, referring to page 95, line 42, after the words "actinism also:"—

It is possible that we may yet find sources of photographic and other actinisms, unaccompanied with either heat or light.

3rd Note, referring to page 95, line 5, second column, after the words "toning baths."

Among others I have found *alkaline ammoniated* baths of chloride or oxide of gold answer well for toning of both ferric and uranic, and also ordinary silver prints, and I may as well mention that I have succeeded also with the same solutions as uranic and ferric chrysotype developers. Common nitrate of gold and other gold salts also deserve trial, though the discarding of chlorine is not so important here as it is in platinum baths, in consequence of the tremendous affinity between chlorine and the latter metal.

Owing to a slight peculiarity in Mr. Burnett's handwriting, together with an accident in the transmission of the proofs, several inaccuracies were allowed to appear in the letter above referred to: the following corrections will, however, render the whole intelligible:—

Page 194, two lines from bottom, after *analogy* insert *and.*

Page 195, first column, line 8, for *actinism, absorption* read *actinism-absorption.* Line 9, for *M. Nièpce* read *M. Moser.* Line 20, after *term* read *latency.* Line 33, for *and is* read *and which is.* Line 16 from bottom of page, for *actinic* read *certain.*

Page 195, second column, line 11, for *Royal Society* read *Ray Society.*

THEORETICAL ENQUIRIES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—There are two or three occurrences in the practice of photography which I cannot explain, and I shall be much obliged if, with your usual kindness, you will be good enough to satisfy me.

1. Why should a distant view require a shorter time of exposure than a nearer one, seeing that the light has a longer distance to traverse?

2. How does *oxide* of silver cause *alkalinity* of the bath?

3. Why should the picture be *faint* and dull when over-exposed?

I can understand the half shadows overtaking the lights, as the latter cannot be intensified beyond a certain degree, but I do not understand why the high lights should not be *as* intense as in a negative properly exposed.—I am, yours, &c.,

Bristol, Aug. 4th, 1858. DISCIPULUS.

[The first of your three queries requires some careful consideration in order to give a *perfectly* satisfactory reply, but we perceive at once some of the influences at work; we therefore answer, 1st.—A distant view, *to be seen at all,* must be well illuminated, and consist almost entirely of *lights,* such shadows as there are being entirely destitute of detail to the eye, hence it presents no difficulties to the most rapid photographic delineation; moreover, in order to *perceive* a distant view, the atmosphere must be clear, another favourable circumstance for the photographer. The distance traversed by the light is rather a favourable than an unfavourable circumstance, as the rays fall upon the lens in a direction approximating to parallelism, and the further the object the shorter is its conjugate focus. 2nd.—Oxide of silver exhibits an action upon litmus paper that is *similar* in effect to that of an alkali, that is, restores the blue colour to that which has been slightly reddened by an acid. It is slightly soluble in water, hence its presence in a bath makes the latter appear alkaline. 3rd.—An over-exposed picture may be wanting in intensity from one of two causes. It may have been exposed to an extent sufficient under *certain conditions* of light not only to allow of the half-tones but the shadows also nearly overtaking the high lights. When this is the case the picture will be weak, because it becomes necessary to interrupt the developement too soon, to allow of the formation of a sufficiently dense deposit upon the lights, in order to save the shadows from total obliteration by fogging. But the picture will also be weak if a very long exposure in an insufficient light has been attempted, because after the exposure of the sensitive medium to the luminous action for a time that has allowed it to produce its *maximum of effect*, any further exposure allows the *destructive action* to come into force, so that the high lights have been perfectly impressed and *partly effaced again* by the time that the half-tones have been delineated. Read carefully Mr. Skaife's letter in the last number, which bears upon this very point, as also a paper by Mr. George Mathiot at page 189.—Ed.]

PRINTING DILEMMAS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I am now again puzzled, as many photographers are. My last letter appeared in No. 7, Vol. 2, of the Liverpool *Journal*, signed "Collodion." In reply you advised me to continue the same process and collodion I was then using. I have done so, and have arrived at pretty good success, as in fact you will see by the specimens enclosed.

I am sorry to say I am again at fault. This time my toning bath is out of order. It is made according to Delamotte's formula. I have tried it with test paper, and it appears neutral. It is also very active, the pictures tone very quickly, but I cannot get them beyond the brown or purple tones, for, instead of their progressing towards a black, they become yellowish green. If kept in the bath only until the brown tones appear, the half-tones and lights are slightly yellowish.

I to-day added about six drops of Beaufoy's acetic acid, which caused it to shew a slightly acid reaction. The marked picture is that toned since the addition. It is not nearly so active as before, but still would not turn the proof to a black shade.

I have tried various samples of paper, but they are all alike. I had previously added gold, yet cannot get beyond the tints mentioned.

You will perceive the details of the negatives are excellent; they are prepared with oxymel, *honey* and *acetic acid*. Of the last ten plates I exposed I got seven good negatives; the only faults with the other three are, in one of them the camera was shaken by the wind, being set up on a hill; the other two were under-exposed.

I shall be much obliged by your advice in the next number of your *Journal*, or shall be glad for a reply per post, for which I enclose a stamp, as I am at present completely at a stand still.—I am, yours, &c.,

Sheffield, Aug. 2nd, 1858. JAMES THOMAS.

[We have already intimated repeatedly that we can only reply to correspondents through the *Journal*. The negatives of the specimens you send must be very fair ones; that with the piece of water and trees would have been better with rather longer exposure and would have borne it well, at present it is *too hard*. You do not seem to be aware that *oxymel* is composed of honey and acetic acid, consequently your mixture is unnecessary. We do not exactly know to what formula you allude when you say Delamotte's, but it is of little consequence, as the prints speak for themselves: the gold in your bath is exhausted, and the toning which does take place is from the liberation of sulphur alone. It does not follow that any addition of a gold salt would be useful in the present case, as it might, and most probably would be, precipitated as soon as added. Throw away your old bath and make a new one, it will be economy in the end. See reply to Edward Thomas Hobson, in No. 5, page 66, where a formula for a toning bath is given. One further remark we would specially desire to notice, viz., that if your negative *be weak*, although having all the details, you had better *sensitize* the paper on which you print *twice* or use a stronger bath, otherwise the reduced silver even in the shadows will not be sufficiently thick to influence a sufficient deposit of the gold to produce a *black* tone, but the change will probably be from dark purple to blue, even supposing your toning bath is in proper order.—Ed.]

FAULTY NITRATE BATH—COPYING PAINTINGS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As a subscriber to the *Liverpool and Manchester Photographic Journal*, I take the liberty of addressing you, to beg your advice on the following subject connected with photography.

I have a positive bath which contained about fourteen ounces, but which, on account of its having been used considerably, was somewhat reduced. The other day I noticed that the pictures appeared very dull, and attributed it to the loss of silver; I therefore dissolved half an ounce of pure nitrate of silver in three ounces of water, and added it to the bath, making it up to about fourteen ounces; I then filtered the whole through white bibulous paper, and the next day tried it, but each plate, as it was drawn from the bath, presented the appearance of having been brushed, so full of streaks was it. I have tried several times since, but with the same result. Can you inform me what is the cause, and how I can remedy the defect?

I am also desirous of being informed of the manner in which to copy an oil painting. I have been unable to obtain a good copy with a portrait lens. Is not this suitable for the purpose, or what size stop (if any) should be used?

I am, yours, &c.
GEORGE WALKER.

Uckfield, Sussex,
10th August, 1858.

[The fault of your bath probably arises from the presence of organic matter with which it has become impregnated. If this be merely ether or alcohol, boiling the whole in a glass, or well glazed earthenware vessel (a pipkin for instance), may remedy the evil. We recommend you to try this, then expose it to the sun's direct rays, in a flat dish, for some hours, and filter, first testing for acidity, and correcting it if requisite with solution (in distilled water) of carbonate of soda. If after this treatment the pictures are still faulty, you may throw down all the silver in the form of carbonate, by the addition of sufficient saturated solution of carbonate of soda in distilled water; allow the precipitate to subside, then wash or three times, and finally redissolve in dilute ic acid. The carbonate of silver should not be osed to the light.

n copying paintings the chief difficulty to over- ie is the proper illumination. We find *generally* t placing it nearly at *right angles* to a window, of rse at the side furthest from the lens, is the ition most likely to be the best. A double com- ation lens, if a really good one, will work at its aperature, providing the focussing be correctly omplished, and the copy not required of too large ize, say not more than a fourth or fifth of the meter of the original, but if it be required as large he original, or nearly so, probably one of Petzval's hoscopic lenses may answer better.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Would any of your readers (or perhaps J.P., Mr. Alfred Keene) inform me, through the medium your valuable publication, the reason of markings, e comb-marks in the hair, occurring on plates pre- ed after Mr. Fothergill's process. Several photo- phers have experienced them besides myself, and ne of us are able to ascertain the cause; it is the y drawback to the process that I have to annoy with, and if I could be helped to its removal, it uld add to the certainty of my results in every er respect. I have seen nothing to equal the uty of this process—not even wet collodion,— l the public owe a debt of gratitude to Mr. Fother- l for placing the process in their hands.—I am, urs, &c., J. H.

Moss Side, Manchester, Aug. 18, 1858.

We have never seen the appearance named.—Ed.]

TEREOSCOPIC CAMERAS AND CORRECTNESS OF THEORY.

o the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—In the last number of *Photographic tes*, page 186, the editor, in his account of a pho- graphic trip, says:—

“I took with me a stereoscopic camera * * * ted with a pair of portrait lenses * * * * the ises being mounted 2½ inches from centre to centre * * * * * this form of instrument I con- ler the best, because it is strictly *correct in theory*,” ., &c.

Now, sir, I wish to ask if you know whether or t the Mr. Sutton, who now edits the journal, is the me who formerly did so. I believe there have been veral changes in the proprietorship, but I fancied e editor had been always the same; and yet, if we fer to *Photographic Notes* of 1856, in discussing the ereoscopic angle, we find the Mr. Sutton, who was en editor, writing as follows:—

Page 56. “The distance apart of the two points view must be one-twelfth of the mean distance the object * * * say ten feet distant, ten ches apart—one hundred feet distant, eight feet x inches * * * * *.” Again, page 108, Mr. tton refers to it, and hopes he has sufficiently oved this to be the “*correct theory*.” He then ates that “if pictures be taken at a distance of ly two and a half inches apart, the effect is that of *single flat picture*.” Page 174, he again refers to e angle, and confirms his former statements. He ys his “*theory* remains untouched,” and leads his aders to infer “that it never can be touched.”

Surely, sir, if this be the same Mr. Sutton, he has rangely altered his *theory*; and I am sure his aders ought to be informed how he first made the scovery that pictures taken at two and a half inches part have not *exactly* the same effect as a single flat icture.—I am, yours, &c., JOB TROTTER.

Bolton, August 20, 1858.

INJURY TO GLASS PLATES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—To caution the inexperienced among my photographic brethren against a similar mishap, together with the desire to learn whether others have in their practice met with a like misfortune, with the means, if possible, of a remedy, I have been induced to offer to your notice the following unexpected and annoying occurrence.

Having roughened the edges of several dozen plates for positives on glass, they were temporarily placed on a bench on the inside of an open window, which I inadvertently failed to close at the usual time. Rain fell in the night and, drifting in on the plates as they rested edgewise against the woodwork, soaked through the coarse brown paper in which they were loosely wrapped, and trickled down through the interstices of the glasses, wetting, in irregular stripes about a third of their upper surfaces. Anticipating no injurious consequences from the water being allowed to remain, they were, in this state, removed to a neighbouring cupboard and left untouched for two months or thereabouts, complete evaporation being prevented in consequence of the proximity of their faces; the plates were found still partially wet when taken out again for use. Following my usual safe plan of rubbing their surfaces with undiluted nitric acid, and allowing the detergent to remain on for four-and-twenty hours, the final cleaning of the plates was finished with the greatest care. Much to my chagrin and disappointment every picture that has since been taken on any of these plates has been more or less damaged by unmistakakle evidences of the above described procrastinating step, in the shape of snail-creeps and marbling, not of the most pleasing character. Had I known the possibility of such an untoward misfortune it might, of course, have been easily prevented, and many dozen coloured plates saved, but which have thus far resisted my most persevering efforts at restoration to usefulness.

I have also a stock of French sheet-glass plates, useless in consequence of stains, I am told produced by a want of care in some one part of their manufacture. I fear the indulgence of the hope of finding a remedy will continue to be without avail. Leaving it to your better judgment, whether the above remarks are worth a nook in your most useful and well-conducted periodical,—I am, yours, &c.

HENRY H. HELE.

Teign Cottage, Teignmouth,
Devonshire, Aug. 7*th*, 1858.

[We would suggest, as worth a trial, exposing the whole of the plates laid out singly to the direct rays of the sun for a day or two before again attempting to use them.—Ed.]

A WORD IN FAVOUR OF HONEY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—The late discussion between yourself and the great Jersey B.A. awakened my curiosity to take a glance at the journal edited by the latter named enlightened gentleman, and to my utter astonishment I find recorded in his advice to an amateur (poor soul, if he adopts it), “Now, it is a decided mistake to use honey as a preservative, because honey contains *two* kinds of sugar, one of which is *grape* sugar—a powerful *reducing agent*, and therefore to be avoided as a preservative, which should be an inert substance like gelatine or glycerine.” And again,—“We advise our correspondent and all our readers to have nothing more to say to syrups, or oxymel, or albumen, but to employ Dr. Norris's excellent process, and none other. * * * *

We have never advocated the use of syrups, and consider them now as nearly exploded from photography." (I cannot resist remarking here that the writer of the above formerly, in one of the same moods, wrote, "Collodion positives on glass are nearly exploded.") Again, he tells the amateur, "Every sensible photographer with whom we have compared notes on the subject of syrups has agreed with us that the syrup dodge has been made a bore and a nuisance, and is quite worthless."

In the name of all that is editorial or photographic, did ever any other man perpetrate such twaddle? Is he under some strange hallucination? or else is he sacrificing principle to personal animosity? Is it *fabulous* that all those exquisite pictures that most people have seen were produced by any of these condemned processes? One would have thought that his professional career would have brought him in contact with many sensible men practising the art; but by his article he bespeaks that the circle of his acquaintance with whom he compares notes, must be very limited indeed.

I have nothing to say against Dr. Norris's plates further than what he (the editor) himself affirms of them in his account of his yachting excursion, where he records having exposed for half an hour, and found some of them underdone on his return to Jersey, which, by the way, must have been *highly satisfactory*, after going so far from home to fetch them, a feat which, from his written experience, he cannot have often accomplished.

To come to plain speaking, the facts are these: only let our friend Chadburn, or any other syrup maker, adopt a more extensive *advertising* system; then the treacle would become less "dauby," the honey would flow in abundance, and, as it did at Beauport, all would go "merry as a marriage bell."

I am, yours, &c.

TREACLE.

Liverpool, August 18, 1858.

COLLODIO-ALBUMEN NEGATIVES BY MR. RILEY'S MODIFICATION.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Having successfully prepared and exposed a few plates, on Mr. Riley's plan, for the preparation of albumen plates (described in last month's *Journal*, No. 14), I take the liberty of sending the negatives for your inspection. Should you think favourably of them, your approval may induce other amateurs—who, like myself, may have been long trying to produce a negative worth printing from—to take up a process so *certain* and *uniform* in its action, that, with moderate care and judgment, they may soon realise the pleasure of bringing home good pictures, instead of spoiled plates.—I am, yours, &c.,

WM. MORLEY.

Islington, August 12, 1858.

P.S.—I use Mr. Riley's collodion, a small short focus lens and three-eighths stop, with from five to eight minutes' exposure for foliage.

[The negatives are very intense, clean, and satisfactory. They are strong arguments in favour of the process.—Ed.]

ANSWERS TO CORRESPONDENTS.

Delta wishes us to inform our friends that he has expended one shilling and seven pence in procuring a copy of a book on "Metallography," advertised as superseding photography, but singularly enough he does not find the promise fulfilled. Only fancy being told to "go over *every line* of an engraving with ink, and *while it is still wet* covering it with gum arabic in powder, in order to make a matrix for an impression in fusible metal!"

S. M., Sligo.—A good portrait lens of small size will answer well enough for stereoscopic landscapes, by placing a diaphragm between the back and front combinations. As a cabinet-maker you ought to be able to make your own camera. A useful set of apparatus complete for stereoscopic subjects would cost you from six to twenty guineas according to your requirements.

Job Trotter.—We should be glad to meet you; but you are under a mistake as regards the individual traversing Kent. If you will refer to the paper, you will perceive that it is by Mr. Wire.

W. B. C.—You will find everything that has been published relative to the process of Mr. Fothergill in the numbers issued since 1st May, 1858.

Thomas Gulliver, C. J. Burnett, in our next.

A Disappointed Lady.
Sam Slick.
K. M. B.
A Reader of Both.
Timothy.

We thank you for the kind feeling displayed towards us, but in *our* case it would be bad taste to publish your criticisms on the article which appeared in the pages of a contemporary as it might *look* like retaliation. We shall not notice further personalities, though we admit the truth of a remark recently made to us, "that an editor requires the hide of a rhinoceros."

J. E. Crowther.—Your letter is in type, and shall appear in our next.

WANTED, by a Young Man who has been for the last eight months in a FIRST-CLASS Establishment, a RE ENGAGEMENT as ASSISTANT. London preferred. Address H. H., Miss Hazeon's, Frenchgate, Richmond, Yorkshire.

WANTED, in a well-established Photographic Rooms in the Midland Counties, a YOUNG MAN who perfectly understands the Negative Process, to take charge of that department. One who understands Colouring would be preferred.

Address, stating terms, R. W., Post Office, Burton-upon-Trent.

TO ESTABLISHED PHOTOGRAPHERS AND ARTISTS.

A RESPECTABLE YOUNG PERSON of active habits, who has been ASSISTANT for Five Years to one of the First Photographic Artists in this country, is desirous of a RE-ENGAGEMENT. She is perfectly competent to take First Class Negatives, and is *au fait* at all the best Printing Processes, Mounting, &c. The most respectable references can be given. Address, S. W., 42, Darlington Street, Wolverhampton.

Excellent Opening for a Photographer.

FOR SALE, the Glass House, Cameras, Lenses, Frames, and Working Apparatus, conformable to Inventory, including a 5-inch Portrait Landscape Lens and Camera, a 3-inch Portrait Landscape Lens and Camera, Stereoscopic Lens and Camera, Pressing Machine and Frame, Camera Stands, &c., belonging to the late Mr. Ivan Szabo, with the use of the premises, No. 4, Salisbury Place, Newington, Edinburgh, till 15th November next.

As Mr. Szabo possessed a first-class and rapidly increasing business, and his whole apparatus was the finest which could be procured in Paris and London, it may safely be stated that such an opportunity for commencing or extending a photographic business has never before occurred in Scotland.

The Inventory of the articles to be sold may be seen, and all information obtained, by application to Mr. Henry Buchan, S.S.C., No. 17, Scotland Street, Edinburgh, Agent for the Executor Creditor of Mr. Szabo, who will give directions for showing the articles, and receive offers from intending purchasers.

Edinburgh, 17th August, 1858.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 18, Vol. II.—SEPTEMBER 15, 1858.

Since going to press with our last number we have been made acquainted with the particulars of two new modes of producing positive photographs upon paper, which are put forth by their joint discoverers, Messrs. H. Garnier and Alphonse Salmon, as a solution of the problem of rendering photographs absolutely permanent, and are tendered to the arbitrators appointed to determine the award of the premium some time ago offered for this purpose by the Duc de Luynes.

The first we shall notice is that for the formation of proofs in carbon: and this is dependent upon the principle of the attraction exercised by *citrate of iron* for *lamp black*. The operation is as follows:—

A well made paper, with a highly glazed and smooth surface, is chosen; and a very trong solution of citrate of iron being made, he latter is applied to the surface of the forn er by the assistance of a pad of dry and crupulously clean linen dipped into the solution, and rubbed rapidly at first, and afterwards more slowly, in order to equalize the hickness of the film. The paper is then dried in the dark, when it is ready for exposure n the pressure frame, under a negative, in the rdinary way. The exposure required in the lirect rays of the sun is for about ten minutes, r from fifteen to thirty minutes in shade.

On removal from the pressure frame the mage is slightly apparent, but without vigour, nd wanting in many of the details. The ark parts of the negative preserve the colour f the citrate of iron unchanged, and it is vith these that we have to deal.

The proof is placed in a shaded place (but sufciently light to see to manipulate), and pasted y its corners to a flat board or sheet of glass; hen, with a pad of cotton wool, dipped into ome very fine and dry lamp black, the latter s passed lightly over the image; no effect is roduced until the proof is breathed upon, hen the citrate of iron *unaffected by the light*, ecomes slightly moistened, and the carbon, hich is passing over it, is attracted thereby, he details making their appearance.

The same operation is continued until all he details that can be obtained are rendered ufficiently visible. The mode of fixation is y carefully plunging the proof into clear filtered water, perfectly free from dust on the surface, by which operation the citrate of iron not protected by the insoluble carbon becomes dissolved, and the picture remaining, consisting of carbon, is neither liable to fade from exposure to the atmosphere or to ordinary chemical re-agents. It is requisite, however, to cover it with a weak solution of gum arabic or varnish of some kind.

The second process is dependent upon the chemical action of mercury upon sulphur affected by exposure to the light, and in the method of developement of the picture it somewhat resembles the Daguerreotype.

To prepare the paper a solution of sulphur, in bi-sulphide of carbon, is made in proportion of one part by weight of the former to three of the latter, and a quantity of this liquid (which, by the way, is extremely volatile and of a decidedly unpleasant odour, resembling garlic) is poured over the sheet of paper, supported for the purpose upon a glass plate. and it is immediately to be moved about briskly, partly to cause the liquid to flow uniformly over the surface and partly to prevent the formation of opaque and insensitive crystals of sulphur. The operation must be performed in non-actinic light, as when dry it is ready for exposure under a negative. The time of exposure, of course, varies, but approximately—half a minute to one minute in sunshine, two minutes in bright weather in diffused light, and five minutes in dull weather, will be found sufficient.

On removal from the pressure frame there is no image visible, but, by developement with mercury, it can be made to appear, to which end an iron dish containing mercury is to be disposed upon a stove or furnace, so that by the application of heat the vapour is caused to arise.

At about three inches above the mercury a frame, covered with a sheet of paper, is fixed, upon which the undeveloped proof is placed face downwards; the mercurial vapours filtered, as it were, by passing through the paper, acts upon the insolated surface, forming a dark yellowish-brown image of sulphide of mercury, which is to be protected by a film of gum, albumen, or other varnish.

The undeveloped proof may be inserted between two sheets of paper when submitted to the mercurial action, by which precaution the developement is rendered somewhat more slow, but more certain.

The sulphide which forms the picture is not affected by alcohol, ammonia, sulphuric, hydrochloric, and ordinary nitric or organic acids, neither by cyanides or alkaline sulphides; but *aqua regia*, monohydrated nitric acid, and acid nitrate of mercury alone dissolve it: heat destroys it, but only when the temperature is considerable.

In making any comments upon the processes here described, it is requisite for us to premise that we have *not seen any of the specimens*; consequently, our remarks must be taken for what alone they are—mere conjecture. We fear that, as regards the carbon process, it must be extremely difficult, if not impossible, to apply the lamp-black, as directed, without hopelessly soiling all the *lights* of the picture. Again, we think that the subsequent immersion in water likely to disturb materially the half tones—and such appears to be the opinion of those who have seen the proofs themselves.

Against the second process the greatest objection appears to us to consist in the necessity for the use of the vapour of mercury, an agent decidedly to be avoided by amateurs on the score of trouble; and by professionals, as well as amateurs, on the still more important count of injury to health.

While it is admitted that by both processes the results are highly interesting and full of promise, it is also candidly stated that, at present, they do not at all compete with those by the ordinary methods in beauty of effect.

In connection with this same subject, a communication was made by M. Gabriel de Rumine, to the French Photographic Society, in which he says:—"I impregnate a sheet of paper with a saturated solution of bi-chromate of potash and gelatine, and then cover the surface with a light film of black lead. Thus prepared, I expose the sheet of paper, under a negative, to sunlight for a quarter of an hour. Having removed the impressed sheet, I immerse the same in a dish of boiling water; the parts acted upon by the light have become insoluble, and therefore remain permanently in the paper; whilst those parts protected from the light are easily removed by gentle friction, with the aid of a small pad of cotton. The proofs have all the appearance of those exhibited in London by Mr. Pouncey."

It certainly is a marvellous fact, that while many photographers are making use of the bi-chromate of potash in conjunction with gelatine as the principle of action, with certain variations and modifications of a comparatively trifling character, and endeavouring to found patents thereon, few or none of them appear to be aware of the notorious fact that we owe the publication of this principle to the Hon. H. Fox Talbot, whose labours in this direction seem to be altogether ignored.

The Abbé Laborde, professor of physics at Pignelin, near Nevers, has introduced the use of linseed oil, previously rendered drying by the action of oxide of lead, for photographic engraving. The process is still in its infancy; but it consists in dissolving the prepared oil in ether, forming on the surface of the metal to be engraved a film as with ordinary collodion, exposing for half an hour or more under a negative, the parts affected by the light becoming insoluble, the other portions of the film are removed by washing with ether, and thus exposing the metal in those parts which are subsequently "bitten in" by the use of a suitable acid.

We perceive that our French friends are now employing *hyposulphite of soda* for fixing their proofs obtained by the nitrate of uranium process, having discovered at length that mere washing in pure water does *not* suffice to render them permanent. We were certainly under the impression that one of the supposed great advantages of the process was the fact of being able to dispense with the use of hyposulphite of soda altogether; and we cannot forbear expressing our opinion that, if this agent be introduced at all (a proceeding entirely unnecessary, as ammonia answers every purpose), the whole *of the supposed improvement is a mere phantom*. What does the process then amount to? An impression consisting of *silver* toned by *salts of gold*, and fixed by *hyposulphite of soda*. How does this differ from an ordinary proof?

M. Gaumé has suggested the use of paper impregnated with gutta percha as a basis for a film of albumen, upon which to print positive impressions, and asserts that not only are these more permanent than ordinary paper pictures, but that the operation of washing after fixation in the hyposulphite of soda is materially shortened, owing to the non-absorption of this chemical by the paper previously prepared in the manner indicated. The *modus operandi* is as follows: Gutta percha is dissolved in benzole, and allowed to repose until the impurities fall to the bottom of the vessel; the clear part is then decanted off, and sheets of paper are successively immersed therein, the solution being first placed in a convenient dish, they are immediately withdrawn and suspended at an angle to dry. The paper appears filled with minute granular particles of gutta percha, which, on being held in front of a clear fire, immediately melt and form as it were an internal varnish, perfectly impermeable to moisture, and which renders the fabric somewhat more transparen than before the operation.

The sheets thus prepared are coated with salted albumen, and employed for the production of positives in the usual way, either by sun-printing or developement.

There is, however, an ingenious method of coating the papers employed by M. Gaumé that is well worth a trial, which is similar to that employed formerly by Dr. Mansell for preparing iodized paper. As many of our readers, however, may have forgotten it, and many others may have become photographers since the calotype process has ceased to be the principal one in use, we shall describe the mode of proceeding.

A sheet of card-board, somewhat smaller than the sheets to be coated, is cut to the size required (say about half an inch less each way), and is laid upon the sheet to be coated so that the edges all round can *be turned over it;* the card-board is removed, and the angles of the paper pinched so as to form it into a sort of *dish.* A similar dish of thick card or milled board, only with the angles cut away, is also constructed, of a size just large enough to receive the paper dish, allowing the angles of the latter to protrude through the parts removed from the former. The paper dish then being inserted into that of card-board, the albumen is poured into them, and by a movement of the hand is made to flow rapidly over the whole surface, and immediately poured out again into the vessel from which it came; the now albumenized paper is removed from the dish of card-board and hung up to dry by the corner opposite to that from which the albumen was poured, and the card-board receptacle is again ready to receive the next sheet.

The albumenizing solution employed by M. Gaumé is as follows, viz.:—

Distilled water...............	45 drachms.
Dextrine	15 ,,

Dissolve by the aid of heat.

Then add—

Chloride of sodium	6 drachms.
Albumen	100 ,,

This is beaten to a froth as usual, and is then allowed to stand for some hours.

The papers prepared as above directed are sensitized in a similar manner, employing, of course, a solution of nitrate of silver instead of the albumen, and allowing it to remain in the extemporised dish for from five to ten minutes, instead of removing it at once. The fixation is effected in a bath of hyposulphite of soda; but, owing to the previous saturation of the paper with gutta percha, the operation is neither so dangerous nor so tedious as in the ordinary method, because there is none of the hyposulphite to be removed from the paper itself, and, consequently, none can be left behind in it to subsequently destroy the impression.

We have not yet made any experiments in this direction, but we certainly regard the details as being founded upon sound principles, and trust that the hints given will not be allowed to fall neglected by some of our energetic experimentalists.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

A General Meeting of the members of this Association was held on Tuesday Evening, August 31st, at the Odd Fellows' Hall, Birmingham, for the purpose of hearing a paper on *The Chemistry of Photography,* by Mr. H. Branthwaite, F.S.A. The Vice-President, Mr. W. Howell, occupied the chair. The paper was as follows:—

The past half of the nineteenth century has been prolific of discoveries of the most useful, interesting, and fascinating character. Human minds have given birth to ideas vast, and for a time so transcendently above the thoughts of the masses that they have been voted as impossibilities. Intellect has been developed to such an extent that, but for the fact of our having grown up amidst the results, they would have appeared but as the imagination of a madman's disordered fancy. Time would fail me to enumerate all the discoveries and improvements which have been made, tending morally and socially to elevate man. The last and greatest of these triumphs has but just issued victorious from its almost overwhelming difficulties, and is now thrilling the whole world with wonder and admiration; whilst with the rapidity of lightning the glorious news is flashed across the broad Atlantic that England and America are united. "Glory to God in the highest, and on earth peace, goodwill toward men." Amongst all these inventions, that which called into existence the Society before which I have to-night the honour of appearing claims a prominent part, whether, as Sparling says, "it be used as an assistant to the artist, or a means of sending home from far-off scenes of war and bloodshed, the portrait of a friend, or perhaps the spot on which he died or conquered;" for what can equal its truthfulness, what can surpass its beauty? The art has been made subservient to the purposes of the artist, the naturalist, the mechanic, and even the antiquary, who "bending o'er some mossy tomb where valour sleeps," may be enabled to preserve a lasting memorial of this science.

So much having already been written upon what is really known of the chemistry of photography, renders the preparation of a paper upon the subject a matter of some difficulty, when we consider that notwithstanding its achievements and rapid progress we have to confess it is still encumbered with the long-clothes of infancy; and although we are perfectly aware that such and such manipulations and processes will yield such and such results, yet why this is so, or what is the nature of the chemical action upon the substances employed in the production of the photographic image, is not yet fully understood, and may fairly be classed amongst those mysterious chemical changes constantly going on, and for which we are totally at a loss to account. Every photographer has found in his practice—be he amateur or professional—that disappointments and difficulties are ever besetting his path, and as yet he has no certain course to pursue in order to discover the source of these annoyances, and avoid them in the future.

Our certainties are based upon the results of experiments tried in order to obtain good pictures; and I must confess myself that, as far as I have been able to judge, some of the best photographs I have seen have been produced by a mere rule-of-thumb practice, by individuals who neither had, nor pretended to have, any knowledge of chemistry. It has been long known that chemical changes, both of combination and decomposition, could be induced by the action of a lens. This effect at one time was attributed to its luminous rays; but it is now proved beyond doubt that these changes are produced by an imponderable—yielding neither light nor heat, to which the term actinism, or chemical power, has been applied. The point at which the greatest amount of chemical action is exerted is at the verge of the violet part of the prismatic spectrum.

Having demonstrated this point by reference to a diagram, the lecturer went on to say:—It has been proved that more of the actinism is present at certain hours of the day, and particular months of the year. During the day, we have it most between the hours of eight and twelve; in the year, it is found to reach its maximum intensity in the spring months, becoming less in summer and autumn, when the luminous and calorific preponderate. In proof of this various experiments have been tried by Hunt, relative to the cause of the germination of seeds. Having found that germination went on more rapidly under blue glass, representing actinism, he was led to have a cucumber frame glazed with blue, and the result of this was, that although the seeds germinated fast enough, the plant was diminutive, and yielded nothing, having all run to stalk, void of chlorophyl (or the green colouring matter to be found in all plants). This experiment, although it failed to produce cucumbers, yet proved to him the fact that germination depended upon the actinic power of the sun's rays, and convinced him that something more was required for the production of leaf. His next experiment, therefore, was to follow the course of the spectrum, and try the effect of yellow glass, by which means he concentrated the luminous rays, and his plants grew rapidly and most luxuriantly, but they yielded no fruit. One course only was now open to him, and being determined to work out his experiments he had recourse to the calorific, by having a frame constructed of red colour, and found by this that the fructifying principle was so augmented as to produce more and finer fruit than under any other condition. From these experiments he deduced that actinism produces germination; the luminous rays develope the plant, the calorific the fruit. This analysis of the sunbeam may have appeared somewhat irrelevant to the subject, but I hope to prove by it that it is to the actinism, and actinism alone, that we have to look for the chemical changes effected in the production of the photograph. The germination of a seed is purely a chemical change depending upon the actinic rays, and cannot be effected by either the luminous or calorific. The same may be said of the photograph; its production depends entirely upon actinism: and the same results would not be if we could shut out the actinic, and use merely the luminous and calorific. Almost all other chemical changes may be traced to well-known laws of chemical affinity; but in the germination of a seed and the photographic process the force which we call actinism interferes, as it were, with the regular laws of chemistry, causing phenomena which we are able to view without having the knowledge to unfold.

In speaking of the chemical agents used in photography, I must at the outset give it as my firm conviction that most of the failures of the photograph may be traced to the impurity of the chemicals used. In many cases this arises from carelessness of preparation; but in many more, I am afraid, from the dishonesty of the trader, who, in his love of gain, sacrifices the interests of his customers, in which course he is supported by parties who unhesitatingly say, "sacrifice success to cheapness." The salts of silver are the most acted upon by the actinic rays. The nitrate is the most permanent of these salts, and may be kept either in crystals or dissolved in distilled water, even in the diffused light of day, not being susceptible to the decomposing influence of the chemical rays until it has come into contact with some organic matter. Its permanence is attributed to the nature of the acid which, with the oxide of silver, enters into combination, the effect of which is neutralized on its being brought into contact with organic matter. In the collodion process, of course, that organic matter is the collodion which retains the iodide of silver, and forms the sensitive surface. From the important part nitrate of silver holds in our manipulations, being the groundwork of the chemical action of the actinic rays, it must be evident that its purity is to the photographer a matter of vital importance. The manner of its preparation is so well known as not to need any description. I should strongly recommend every photographer to submit his nitrate to thorough testing before using it.

Sometimes we find a quantity of free nitric acid, which, of course, the test paper will readily detect, and may be easily thrown off by placing the crystals in a porcelain or glass vessel, and holding it over boiling water till the silver is heated to a few degrees. As nitrate of silver is often adulterated with nitrate of potash from its similarity and ready fusibility, I should next proceed to test for this, which may be done by making a solution of say five grains in half an ounce of water; in this saturate a piece of bibulous paper, and if nitrate of potash be present, even to the extent of five grains in 500, it will be readily detected by the paper burning in a similar manner to a fusee, which neither ordinary paper, nor that soaked in a pure solution of nitrate, will do.

A further test may be used as follows:—To a solution of chloride of sodium, six grains to the ounce, add a solution of nitrate of silver, seventeen grains to the ounce; the *whole* of the chloride in the chloride of sodium will be precipitated if the nitrate be pure, but if on the addition of more nitrate solution a further precipitate takes place, it is a clear proof that some adulteration of most likely either copper or nitrate of the potash is present, both of which are alike objectionable in photography. It is sometimes a matter of importance to be able to determine the strength of the nitrate bath after it has been in use for some time, and I regret that Prof. Medlock, with whom I have been in correspondence on the subject, was compelled to visit Switzerland before he had supplied me with his apparatus for easily determining this. It is done by means of a centimetre measure, and a standard solution of chloride of sodium, of such a strength as that ten cubic centimetres should precipitate three grains of nitrate. This will be an easy way of ascertaining the strength; and, as soon as I am in possession of full particulars, I shall have pleasure in communicating them to the Society. The plan I at present adopt is as follows:—Dissolve six grains of chloride of sodium, pure, in thirty-four fluid drachms of distilled water; this I call standard solution No. 1. I then take one drachm of the bath to be tested, and add to it one ounce of distilled water, which we will call solution No. 2. I then add drop by drop of No. 1 to No. 2, as long as the precipitate is given. Every drachm of No. 1 used represents half a grain of nitrate of silver in No. 2. Therefore, all that is necessary is to multiply by eight, and the product will give the number of half grains in an ounce. Before leaving this part of the subject I may just state that I have been informed by a photographer, of some fifteen years' standing, who gives it me as the result of many experiments, that for every ounce of collodion that passes through the bath, the solution is robbed of five grains of nitrate of silver.

Great care should always be taken to keep the nitrate bath from the light, for although pure nitrate of silver dissolved in distilled water as I before stated, is not affected by exposure, yet, after it is brought into use each plate that is dipped leaves behind it some portion of organic matter, which, in conjunction with the oxygen, causes decomposition. This may be illustrated by exposing to the sun two bottles containing nitrate of silver, into one of which some organic matter has been put.

Iodide of potassium is the next article of importance to the photographer, and one which it is difficult to obtain pure. This arises either from the use of an impure carbonate of potash in its preparation or the carbonate being added in too great an excess. If the first be the cause, we shall have the impurity consist of sulphate of potash or chloride of potassium; if the latter, we have an excess of carbonate. This is easily detected by the addition of lime-water, which will cause a precipitate.

In the nitrate of silver and the iodide of potassium we have two elements forming the sensitive coating ready for exposure in the camera, when the actinic rays reduce the silver which is then deposited in minute particles upon the organic matter,—collodion for instance. Their capability of doing this is shewn by the following experiment:—Suspend a piece of charcoal in a solution of nitrate of silver, of any strength, and expose it in the sunlight, when the metallic silver will be deposited in beautiful crystals and this will continue until the whole of the silver is reduced.

The next subject is the developing of the latent image, and no point in photography appears to have been more contested. After reading considerably on the subject, my own opinion is, that the developing process is but an extension of the reduction of the salts already commenced during exposure in the camera, in which the actinism has partly disengaged the oxygen which the developing agent completes. The only two developers I shall notice are, the protosulphate of iron and pyrogallic acid. The former of these, from its low price, is not likely to be adulterated, but it often happens that, owing to carelessness in its manufacture and preservation, it contains sesqui-oxide of iron, known by the angles of the crystals becoming yellow brown. If they are clear green and translucent, we may safely consider it pure.

Pyrogallic acid is produced by submitting gallic acid to a temperature of 430° Fahrenheit, and its use for photographic purposes is in a great measure injured if the temperature has been too high, as it causes the acid, when mixed, ready for developing, to decompose more rapidly. Freedom from colour will shew that it has been carefully prepared. Its impurity generally consists of tannic acid, which may be readily detected by a solution of isinglass causing a precipitate.

Having now developed the image, it becomes necessary to remove the iodide of silver which has not been acted upon. This is done by what is erroneously termed "fixing agents;" but it must be apparent that the image itself is permanent; but that part which has not undergone the process of reduction is still sensitive, and if not well and thoroughly washed away, will, in its turn, decompose and affect the whole picture; and here we have a great proof of the necessity of a free use of water, both after the developing and clearing away of the unaltered iodide; for, if hyposulphite of soda be the fixing agent, and the smallest quantity be allowed to remain, we shall have sulphur liberated by a slow process of spontaneous decomposition, and the sulphur acting in conjunction with the oxygen of the atmosphere will certainly cause the picture to fade; but if the washing be complete, I see no reason why the photograph ought not to remain for ever unchanged either by time or light.

The cyanide of potassium is the best cleaning agent we can employ when the iodide of silver is the sensitized surface, as this salt rapidly dissolves in a solution of cyanide; but in cases of positive paper proofs where we have the chloride of silver, hyposulphate of soda is the best solvent. From the price of these two articles they are not likely to be adulterated, it is therefore unnecessary to enter into any details of tests.

Unforseen circumstances have prevented my giving that time and attention to the getting up of this paper that I could have wished, and what I consider the importance of the subject demands. In conclusion, I can only repeat that the art of photography is still in its infancy; that great and glorious discoveries have yet to be made. Let not, therefore, disappointments and difficulties deter us from the amount of perseverance which is necessary to overcome them. If none of these difficulties existed it would be fatal to the swell of triumph which will attend complete success. Let us then

> "Despair of nothing we would attain,
> Unwearied diligence our point will gain."

Mr. Branthwaite resumed his seat amidst loud applause.

A brief discussion followed the reading of the paper. Mr. Osborn did not concur in the opinion expressed about exposure of the bath to light, as he had often found this useful when the bath had been some time in use. Cleaner pictures were thus frequently produced. Mr. Branthwaite said, that if much organic matter was present, it would inevitably precipitate the greater part of the silver. As to the impurities of nitrate of silver Mr. Harris contended that it would be impossible to adulterate it to any extent with nitrate of potash without the adulteration being detected by the merest tyro.

On the motion of Mr. Morris, seconded by Mr. Ball, a cordial vote of thanks was passed to Mr. Branthwaite for his able and interesting paper.

Mr. Osborn (the Treasurer) intimated that Mr. Sutton would, in all probability, read the next paper.

The meeting then adjourned.

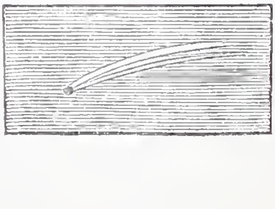
REMARKS ON SOME FAILURES IN THE COLLODION PROCESS.

By Mr. Hardwich.

In the back numbers of the *Liverpool and Manchester Photographic Journal* many causes of failure in the collodion process have been pointed out, both in papers upon the subject, and also in answers to correspondents. The writer has much pleasure in adding a few remarks of his own, which he hopes may prove serviceable to beginners.

Mr. Long, in his pamphlet on the dry collodion process, speaks of the use of residues of collodion for cleaning glasses. This plan we have found very serviceable, and particularly so when the plates are cleaned in the developing room, where vapour of ammonia would do injury. In the hot weather a little difficulty arises from the collodion itself becoming dry upon the glass before it can be removed; but this is obviated by adding *water* in some quantity (about one drachm to the ounce), until the pyroxyline produces a permanent deposit in the bottle. The whole well shaken, and rubbed on and off quickly with a piece of calico, will remove all finger-stains and grease spots, leaving the plate in a condition to receive the final polish. The cleansing is effected by the solvent action of the ether, assisted mechanically by the pyroxyline.

In breathing on the glass to ascertain that it is clean, transparent marks are often produced. A particle of saliva touches the plate, is carried forward by the leather, and will shew in the developement, somewhat like the annexed diagram.



Beginners usually fail in applying the collodion, from keeping the eye too much upon the neck of the bottle instead of looking at the glass on which it flows. The plate should be quite level and the pool of collodion circular. First pour on the full quantity, and then incline the plate. Never tilt and pour at the same time. It is also a mistake to coat the plate near an open door, as a draught will at once set the collodion; and in warm weather the quicker the whole operation is performed the better.

The rapidity with which the collodion sets determines the time for dipping in the bath. Independently of temperature and relative proportions of alcohol and ether, the quality of the pyroxyline affects the setting. Pour a little of the collodion upon a glass, and touch it with the finger after an interval of two or three seconds. One variety solidifies almost immediately, and the finger may be rubbed backwards and forwards over the film without disturbing it. This kind — the tough collodion—must be dipped quickly, or there will often be markings like fern leaves, &c., at the upper part of the film, even although the collodion be made with the full quantity of alcohol.

In the case of collodion, such as is often sold for the dry processes, the setting properties of the pyroxyline have been almost destroyed by the action of the sulphuric acid at a high temperature. Consequently, if alcohol be present in large proportion, one minute, or a minute and a half, may elapse before the film will be sufficiently firm to bear the action of the bath. Inattention to this point has led to the condemnation of a really good collodion as rotten and useless.

Transparent streaks running in a wavy manner from the top to the bottom of the plate are due to the bath solution accumulating in lines upon the surface of the film. They will rarely occur with a newly-mixed bath, but are common as the solution becomes saturated with ether. Contractile collodion, made from spirits nearly anhydrous, shews these markings more than powdery collodion containing the full quantity of water. The remedy is to keep the plate out of the bath until much of the ether has escaped, and when it has been immersed, to leave it in a long time. These directions, however, will not always be sufficient when the bath is out of order. In that case, alcohol, as nearly as possible absolute, must be added to the collodion, in the proportion of two or three drachms to the ounce, which will effectually cure the greasiness, at the same time diminishing the sensitiveness slightly, with most kinds of pyroxyline.

Every practical photographer knows the transparent curtain marks at the lower edge of the film, produced by the solution of nitrate of silver draining down, or perhaps in some cases ascending by capillary attraction from the corners of a dirty slide. Dr. Norris speaks of a solution of nitrate of silver "conducting away the image," and this is probably true. We have observed, that when a certain kind of organic matter was purposely added the marks appeared in great profusion: and it may be from this cause that they are more frequently seen when decomposed collodion and old baths are employed. Careful draining of the plate upon blotting paper, not only before but also after exposure in the camera, and well wiping out the slide, will offer the best chance of avoiding these marks; but, in spite of all precautions, they will occasionally make their appearance, and hence it is advantageous to use a plate larger than is required, and to allow a margin of half an inch or more at the lower part.

White spots upon the film are often attributed to the collodion, but in most cases unjustly so. To make the experiment we have taken collodion immediately after its preparation, with undissolved pyroxyline at the bottom, shaken all up together, and developed a negative. No distinct spots were visible, although the black parts, when viewed by transmitted light, presented a finely mottled appearance, like pepper and salt. One sample of collodion may give the spots more than another, and yet the spots may not be in the collodion. If they are white, with a central nucleus, they are produced by *dust* in the majority of instances. When using a new set of apparatus, or a dark box, or a tent, or a cloth-bodied camera, dust must be expected, and will be obviated only by careful wiping with a damp cloth.

Transparent pin-holes in the negative sometimes come when the plate has been left an unusually long time in the bath. On taking it out, and draining, little projecting points, or crystals are seen upon the film, each of which leaves a hole. No explanation of their nature can be given at present.

To avoid spots, besides the precautions given above, observe the following:—Always use the camel's hair brush after polishing the glass. Place the sensitive plate quietly in the slide, and be careful not to drop it, or knock it against the projecting stand of the camera. Focus and expose as quickly as possible, for it is well known that the longer a plate is kept before developement, the greater is the chance of any little solid particle present becoming the nucleus of a spot.

(To be continued.)

ON THE APPLICATION OF PHOTOGRAPHY TO BOTANICAL AND OTHER BOOK ILLUSTRATION.

By C. J. Burnett.

The publication in a generally accessible form of correct representations, such as photography will give of our plants, and especially of our trees and shrubs, is likely to be of vast importance, not only to the botanist, but also to the landscape-painter, and to lead towards such an improvement in public taste as would result in its as little permitting as a matter of indifference an oak to be represented by an elm or an ash, as it would now a horse by a cow or a sheep. At present, in spite of the effects produced by Mr. Ruskin's excellent criticisms, we have still too much of this neglect of specific, and often even of generic character.

We might begin by the publication of a series of plates of our own native and introduced trees and other scenically characteristic plants; each tree being illustrated by several portraits.

1st.—Say one of it as a whole, along with its natural scenic associations; or perhaps one giving it as it stands singly developed on every side to its full capabilities, and a second as a group tree, characters differing in most cases very widely according to surrounding circumstances; or we might have even more than two, as illustrating its growth on different soils and in different climates.

2nd.—Say a branch of such size as to illustrate better the disposition, arrangement, and stratification of the foliage.

3rd, 4th, and 5th.—Smaller portions, shewing distinctly leaves, blossoms, fruit, &c., in natural relative positives, and also separately, including, perhaps, even enlarged microscopic photographs from section of stem, &c., parts of blossoms or fruits, &c.

I should like also to see a series of smaller native flowering plants or ferns, or a judicious selection from the productions of Kew gardens* introduced to the public, both for the benefit of the botanist and for the improvement of general taste, also for the use of art-designers for our manufactures. Surely our government, in connexion with its strong patronage of schools of design, might be expected to take some *active* part in forwarding such a publication as is now indicated. To our porcelain manufacturers especially such a work would be invaluable. and the same might be said of a series of photographs of many of the zoophytes, and especially of microscopically enlarged illustrations of the Diatomaceæ, Desmidiaceæ, and other allied forms. These, and other of the lower forms of organisms, are particularly suited for the formation of kaleidescopic patterns, and the kaleidescopic photograph might, as I have elsewhere had occasion to remark, be conveniently formed *at once* by the proper apparatus, that is, the kaleidescope and lenses fitted to a camera.† These photographs are to be used either for copying by the draughtsmen or engraver, or for direct formation of *blocks* or *plates* from them, for the printing of impressions which are to be burnt into the porcelain; or else we may, by the use of suitable chemicals, burn in the photographic positive itself.

Any one who will look at a set of illustrations of the Diatomaceæ or Desmediaceæ will at once perceive the suitableness of many of their forms for decorative purposes.

I have, before now, expressed my opinion most strongly of the advantage, as regards truth and confidence, to be attained by substituting, to a great extent in our books of Natural History, the truthful sun pictures for the gross caricatures of nature which are (though we have many distinguished exceptions) so much too frequently to be found in such places. At present how little confidence can any one entertain in the ordinary representations of vegetation, animal forms, geological structure, or general scenery brought home from abroad, these being the very cases where truth is of the utmost importance.

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* Since writing the preceding I have seen some stereoscopic photographs from Kew gardens, interesting and well done, but yet not filling exactly this gap. I have been also favoured lately with the sight of a most interesting and numerous set of plant-photographs, by Mr. Sang, of Kirkcaldy, which I most earnestly hope he may be induced to render accessible to the public.

† The apparatus of this sort which I got fitted up for me in Edinburgh about eighteen months ago did not work very well, but that was simply from bad workmanship, and has not diminished my opinion of the value of the plan properly carried out.

The positive should be printed on thin paper, as thin at the least as "India paper," and inserted in the proper part or *parts* of the page, either by the use of some adhesive compound, or *by simple pressure alone* as is now done in the case of India proofs, and may thus be inserted conveniently even in the gaps left in a printed page, being cut to proper size by a punch or other machinery, and the place they are to occupy indicated by *printed* marks. About double the stereoscopic size would be often a convenient one for these prints.

Various plans, of which I will send shortly a full and detailed description, for economising time, labour, and money in the production of these photographs may be resorted to.

Regarding the vitally important question of permanence, the specimens are now to be seen of my uranic processes of March, 1855, &c.; and I have made some remarks, and have many more still in reserve, connected with my views as to the means likely to secure permanence by ammonia fixing, &c., and recommend among other things the use of the alkaline *platinates* and *aurates* for forming toning baths, and the latter also for uranic and ferric chrysotype developers. I believe no bad system of photographic printing to be, perhaps, the fixing by ammonia and toning by an *aurate of ammonia or other alkali*, without chlorides.

Amongst the various optical questions, especially in connexion with binocular vision, is that of the particular part for which we ought to focus, it being *on the whole*, in my opinion, that part of the picture which the natural eye, *if confined to the same picture* would *spontaneously focus* itself for.

As to the due proportionate representation of the different colours in photography, among the expedients to which we may have recourse in this direction are,

1st.—The use of chemicals more easily acted on by different kinds of light.

2nd.—The use of blue, red, and variously coloured glasses and other media, either in the lenses, in the glazing of the operating room, or in the shades covering the paper in our slides, or placed elsewhere, as on the diaphragm or before the lens.

3rd.—The use for printing of a negative which has been *made from a positive, which positive has been produced from the original negative*, but has been carefully *gone over with a pencil and china ink or sepia, by a competent artist*, so as to remedy the original inequalities of colour-representation, till either the second plan which promises well, or some of the others are perfected, *all* our landscape photographs, portraits, and most especially copies of paintings, should be subjected to either this process* or the next.

4th.—A modification of the third, obtained by diminishing the intensity of the *too strong* parts of the picture by the use of a little yellow varnish or other obstruction carefully *applied to the negative*, so as to diminish the quantity of light passing through these parts of it.

5th.—With various combinations and modifications of these plans.

With reference to a branch of photography of great importance, the *copying of paintings*:—In the case of modern paintings, the original artist ought, in all cases where possible, to be induced to make a copy of his own painting in simple black and white for the photographer to take his negative from. Such a plan carried out by the art-unions might almost or entirely supersede the system of engravings with incalculable advantage. But in the case of old paintings we must either get hold of the best qualified man within our reach to make the black and white copy for the photographing form, or else, till some of the other plans are perfected, make the photographer take the negative, and then proceed, as described in plan 3, to remedy the inequality of colour representation before we print the final positives.

Pending the perfecting of photo-lithography and photo-metallography, the best way of obtaining an *unphotographically-printable-from* impression of a painting, is to get a good *pen and ink* or pencil drawing made from it; then get a photograph made from the drawing, and have it transferred to metal by photogalvanography, which is capable of producing as perfect copies as we could wish, *where there are lines in what is to be copied*, as we see every day in the exquisite copies of engravings produced by it. Photolithographic stones or photoxylographic blocks could also be easily produced from these line-drawings. I have further recommended the use of polarized light for microscopic photography, with the view of getting photographically fixed impressions of the wonderful structural revelations which that description of light is so well known to give when used in the ordinary microscope.

There are many more points which might be touched upon, but my present object is rather to direct attention to, than to treat fully (as I did in my paper as read in spring at our Botanic Society) upon, a subject that appears to me of considerable importance, as well to the photographer as to the man of science or amateur of art.

THE ORTHOSCOPIC LENS.

The following letter was addressed by Herr Pretsch to a contemporary:—

Dear Sir,—In the leading article of the last number of the *Liverpool and Manchester Journal* is mentioned several times the "Petzval lens" and the "Orthoscopic lens." For the purpose of preventing the public being mistaken by mixing up the various descriptions of those lenses at present brought into the market, permit me to state, that the lens alluded to in the above-mentioned article,—the same lens which gave "the evidence of the own eyesight,"—*has been, not one of Professor Petzval's*, by the simple reason, because none of this description and size have been issued by Professor Petzval. The first consignment of those smaller lenses I have only received a few days ago, and they possess a focus of 18-ins. for pictures of 13×10½-ins.

It is perfectly true Mr. Shadbolt had two of Professor Petzval's lenses for examination, but they are of the larger size, focus 26 ins., size of picture

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* Any touching wanted for other purposes should also be made in this way, which I have long recommended to my photographic friends, as *infinitely preferable*, on many grounds, to the touching of the *ultimate* positive. Only get *one satisfactory* positive in this way, and you have all the others equally good, by simple printing from the second negative without any after touching. The *first negative* should, however, in all cases, be *also religiously preserved* as a voucher that *unwarrantable* additions or alterations have not been made.

16×12 or a circle of 20-ins. diameter. I suppose that Mr. Shadbolt has only examined the portrait-combination with short focus, and perhaps the capabilities of the three lenses together. But I do not think that he has examined at all the large pictures reproduced by the new combination with the larger focus.

I consider it my duty to make this statement, and am obliged to add that I do this only for the sake of stating the true facts, without the least wish of beginning a new controversy. Paul Pretsch.

67, *Great Portland-st., London,*
Aug. 21*st*, 1858.

We think it but justice to state that Herr Pretsch's remarks *are perfectly true*, the orthoscopic lens alluded to by us in a former article was *not* made by *Professor Petzval*, or under his superindendence, for the simple reason that we had not the necessary convenience for trying those of twenty-six inches focal length at the extreme edges of the pictures they would cover. The lens was, however, made upon the *same principle*, and was certainly a good lens.

If for a picture sixteen inches by twelve inches a lens of twenty-six inches focus be required, we contend that *the angle of subject* included from any given spot is not greater than what we stated that the orthoscopic lens we employed would cover *properly*.

We have further nothing to say against the lenses which Herr Pretsch kindly allowed us to test, but *very much in their favour;* our objections were directed simply against the claim for great superiority in principle as practical working instruments of the orthoscopic or Petzval lenses for landscape purposes. Our opinion is still the same.

ON TRANSFERRING THE COLLODION FILM.

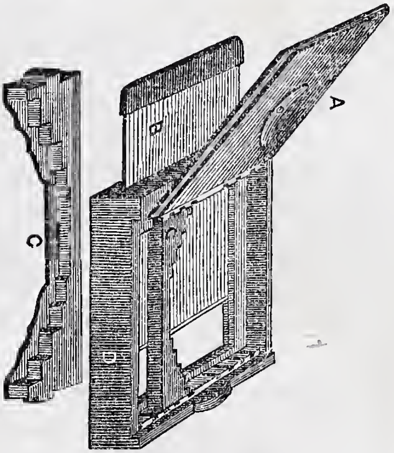
Several of our correspondents having sought information relative to the following subject, we extract it from *Humphrey's Journal:*—

"Some time ago I bought a process for making transfers, which I have worked successfully, and, as I have never seen it in print, I send it to you, premising that as I bought it I could not work it; but I have improved it so that I can depend upon 99 out of every 100 pictures. I do not profess to have invented it—only improved it.

"Take of chloroform 5 oz., balsam of fir 1 oz.; mix and add pulverized asphaltum until it is as thick as collodion—about three-quarters of an ounce; filter through cotton. Cut your paper a little larger than the glass, and wet thoroughly in clean soft water. Take a collodion positive in the usual way; dry it, and then flow it several times with alcohol, and dry again; the flowing with alcohol does not affect the transferring, but it preserves the whites of the picture,) pour on the chloroform varnish in the same manner as collodion, and, when sufficiently set to receive the impress of the finger without sticking, apply the paper directly from the water bath without waiting for its *dripping*; lay it on smoothly and roll down smoothly with a soft roller; (I use too thicknesses of common flannel on a wooden roller; any paper will answer, but I prefer plain black, and apply the black side,) in a few minutes the whole may be peeled off, the same as in the patent leather process, over which it has many advantages: it needs no further finishing, except trimming to the required shape. If the varnish is *too thick*, or if it has been taken off *too soon*, it will shrivel in drying: in the latter case the difficulty may be entirely removed by bending the picture over the fingers in the direction of the lines, keeping the collodion convex and exposing to strong heat for a second; passing through the flame of a lamp answers, but the heat of a fire is preferable. If the varnish has been too thick this will help, and sometimes entirely remove the difficulty; but often, in removing the lines in one direction, others appear at right angles to the first; the remedy is, *thin the varnish*. If allowed to stand too long, the film will not peel off, in which case wet the paper again and set by as at first; but be more watchful, because if it be taken off too soon after thus re-wetting, it is apt to be crossed by innumerable cracks which utterly spoil the picture. The drapery may be coloured before transferring by Spooner's process; but I have not yet succeeded in colouring the face so as to amount to anything. By the way, the Messrs. Spooner say the colour is deposited *between* the collodion and the glass, which is not the fact; the colour is deposited *in the film*, as any one can prove by the above process."

PATENT IMPROVED ADJUSTABLE FRAMES.

New apparatus for photographic use are every day being introduced. The accompanying cut is an illustration of a new plateholder, invented by Mr. Stock, and it will be readily understood by the following description:—



A is the back or door opened; B is the slide which shuts off the light; D is the body of the frame. So far there is nothing novel presented; but C is new; it is a moveable piece, which fits at each end into a grove in the body of the frame D. There are two of these pieces, one [C] outside, and the other is represented in D. These pieces can be moved so that they will hold any sized plate. The patentee speaks of them as follows:—

"The improvement in this frame consists in its being adjusted with facility to any size described by the operator, without the encumbrance of nest frames; and in its being constructed of gutta-percha in the parts most likely to be affected by the nitrate of silver, thus rendering it more durable than any other."

[The foregoing appears to us to be an extremely useful contrivance, as it not only obviates the nuisance of a nest of frames in a constant state of tremor, but when any of the inner ones are renewed for the accommodation of large plates they are always getting broken or lost when wanted. By that arrangement the moveable pieces are never absent altogether, and, in addition, the plates can be fitted in either perpendicularly or horizontally, as may be required. We do not admire the gutta-percha, and should probably substitute other wires or plates, but the principle is what we approve.—Ed.]

ON CASEINE FOR PHOTOGRAPHIC PURPOSES.

By P. C. Duchochois.

(From the American Journal of Photography.)

To prepare soluble caseine, add about fifteen drops of pure sulphuric acid (diluted in one ounce of water) to a quart of skimmed milk; let it stand ten or twelve hours; collect on a filter the precipitate, which is coagulated caseine; wash it three or four times with pure water, and mix it with newly precipitated carbonate of baryta: the acid will soon be saturated and the caseine dissolve in water; then filter the solution and evaporate carefully to consistence of syrup (or to dryness, if you want to keep it), at a low temperature.

The caseine possesses all the chemical properties of albumen and is isomeric with it.

As a substitute for albumen in photographic preparations I have found the following advantages:—

1st. It does not desiccate so completely as albumen, is consequently less liable to scale, to split, and can support a larger proportion of iodide without fear of crystallization.

2nd. It coagulates less strongly, and gives a film less tenacious, more porous, hence proofs more harmonious, and preparations much more sensitive than those of albumen. They are not, however, as rapid as collodion; but by adding to the caseine some of those substances which give more sensitiveness to albumen (honey with soluble starch), I have obtained a good negative (in operating with the dry film) in seventy-five seconds, the collodion requiring one minute.

3rd. It is excessively fluid, easily filtered, and always free from those mucous threads which form in albumen.

It is also a very good varnish for collodion negatives, and can be used to prepare positive paper. Until now I have not been able to coagulate evenly the caseine on glass, having every time a film full of marbling lines, like those which take place on a collodion film sensitized with a too weak silver bath, or which does not contain enough pyroxiline.

I think to overcome soon that difficulty.

By uniting caseine with albumen I have obtained perfect proofs as harmonious as those on collodion, and in a time of exposure twice more rapid than on albumen.

The formulæ were:

A.—

Solution of caseine, as thick as albumen	3 fluid ouces.
Albumen [from duck eggs]	2 ,, ,,
Solution of—	
Pure water	4 drachms.
Honey, crystallized	50 grains.
Soluble starch	15 ,,
Iodide of ammonium	40 ,,
Bromide of ammonium	10 ,,
Tincture of iodine [new]	5 drops.

B.—

Rain water	4 fluid ounces.
Nitrate of silver [crystallized]	125 grains.
Nitrate of zinc [fused]	70 ,,
Acetic acid No. 8	1½ fluid drach.

C.—

Rain water	1 quart.
Acetic acid No. 8	1½ fluid drach.
Gallic acid	70 grains.
Pyrogallic acid	15 ,,

Solution of nitrate of silver at four per cent. in water added to the developer in very small quantity when required.

The operations were conducted the same as for albumen.

In the collodio-albumen process of M. Tanpenot the above formulæ are the best I ever found for sensitiveness of the preparations, cleanliness and beauty of the proofs; never any blistering or rising of the film. The process is therefore a sure one, provided the collodion is not very tenacious and contractible. I do not hesitate to recommend it in preference to any other. The caseine can also be employed *alone* for dry collodion; here again it is very superior to albumen, gelatine, or metagelatine. The caseine solution must be very fluid, so as to filter easily through paper. The *modus operandi* is absolutely the same as for those processes: wash the sensitized collodion film, let it drain a few seconds, pour upon it the caseine, let dry, set, develope.

The preparation of pure dry soluble caseine is not very easy for those not well acquainted with chemical preparations, but I believe it will hereafter be found in any place where photographic chemicals are sold.

New York, May 25th, 1858.

REVIEW.

Ackland's Hints on Fothergill's Process.

(London: Horne & Thornthwaite, Newgate-street.)

We may safely say that the price of this little pamphlet places it within the reach of every photographer, seeing that it may be obtained for the mere asking; but unlike most gratuitous gifts, it is by no means valueless.

The hints are more directed towards the *bungler* than the *adept* in photography, seeing that directions are given for pouring on the collodion and immersing the plate in the sensitizing bath, while the details peculiar to the process treated of, though precisely *the same in principle* as those already published in these columns by Mr. Keene, are somewhat more elaborate because intended for the less skilful operator. Mr. Keene's directions are written for photographers "in esse," while Mr. Ackland's are chiefly for those "in posse;" the former will be the followers of Mr. Keene, partly because the proceedings in his case are simpler, and partly because the plates are likely to be more sensitive, whilst the latter will be adherents of Mr. Ackland because he shews how a novice may become a photographer of some sort by a short cut.

There are two points upon which we would offer a word of advice, the one being to recommend photographers to avoid the use of *vulcanized india rubber balls* for plate holders, as suggested in this pamphlet, because there are other plate holders of a better construction sold by the publishers, and also by all dealers in photographic materials, and we have known cases where otherwise excellent negatives have been totally spoilt from spots produced by minute particles of sulphur thrown out of these same india rubber balls—sulphur being a part of their composition, and which being generally in excess works out by use. The second piece of advice is to procure some of the excellent glass dishes for stereoscopic plates sold by Dancer, of Birmingham, and probably by others. The dishes we mean are formed in a mould, just the size internally of the stereoscopic plates, and furnished at the angles with supports that keep the plates from the bottom of the dish about the twelfth part of an inch, and by placing the plates therein, collodion side downwards, they can be washed or developed with a minimum quantity of liquid, while any deposit or other impurity falls away from, instead of on to, the collodion film.

To return to Mr. Ackland's pamphlet, we extract his few concluding hints:—

"Clean the glass plates carefully with very clean cloths, avoiding especially those used to wipe the hands after coating with albumen.

"Filter the bath solution whenever about to prepare a lot of plates; and, when not in use, keep it in a stoppered bottle in a dark corner of the operating room, so that the full glare of daylight may at no time fall on it.

"Allow the collodion to set thoroughly before immersion in the nitrate bath, or it may become detached in washing or after fixing; but, as a matter of course, this must not be carried so far that any part may become dry, or the nitrate bath will act unequally on the film.

"Iodized collodion that has become too thick for use by evaporation, may be diluted with rectified sulphuric ether; but *methylated* ether must not be used for this purpose.

"After sensitizing the collodion film wash as described, and do not allow water to fall directly on the surface of the plate, or unequal patches will shew themselves in developing.

"The dilute albumen that has been employed to coat one plate must be thrown away, and a second quantity taken for the next plate.

"Use two globe plate holders, one for collodionizing the plate, and the second for coating with albumen, but carefully avoid using the one ordinarily employed for the albumen to coat a plate with collodion, as albumen would thus be introduced into the bath solution, which would speedily spoil it for the purpose.

"Handle the coated plate as little as possible, and always wash the hands after coating with albumen, before removing another plate from the bath; indeed, never take up a plate without washing and drying the hands on a clean towel.

"Give a full exposure in the camera, or the resulting negative will be harsh, and produce black and white prints without middle tints.

"Keep the glass used for the developing mixture perfectly clean.

"Take especial care that no gleam of white light falls on the plates during preparation or drying, and stow away in *light-tight* boxes of mahogany or tin, if not required for immediate use.

"Guard against over-development, as a comparatively weak negative by this process will print well, owing to the nature of the deposit forming the shades having a greater action in stopping the light whilst printing, than that produced by the ordinary collodion process."

CHROMO-PHOTOGRAPHS.

BACKSHELL'S PROCESS.

WE were invited by Mr. Wood, of Cheapside, to examine some productions under the above name, and as we are constantly being solicited for information relative to the colouring of positives upon glass we consider that a few words upon what we saw may prove of interest to some of our readers.

The process is a secret one, communicated for a fee only, consequently we are unacquainted with the details, but the title is certainly a misnomer, as the pictures are coloured by hand, and not as the name imparts *photographs in colours*. The pigment is laid on upon the collodion film, but the picture is viewed *through* the glass upon which it is taken, the film having previously been submitted to some operation which permits of the colour penetrating it. The shadows are formed by blackened glass being placed behind, and nearly but not quite in contact with the other glass. Our object in noticing that which is not strictly to be classed under legitimate photography is simply to keep our professional supporters *au fait* at all that is going on connected with their occupation.

CORRESPONDENCE.

☞ *All* EDITORIAL *Communications,* BOOKS FOR REVIEW, *&c., should be forwarded to the Editor,* GEORGE SHADBOLT, ESQ., 2, *Upper Hornsey Rise, N., Middlesex. All* ADVERTISEMENTS *and* LETTERS *on the* BUSINESS *of this* Journal *should be addressed to the* PUBLISHER, 32, *Castle Street, Liverpool.*

DETERIORATION OF GLASS POSITIVES, &c.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—For about a year I have been gratifying myself with the "amateur's practice" of photography, having spent much time, labour, and money in acquiring a knowledge thereof, and so far as I can see by the *Journal,* with something like the average success of its votaries—sometimes pleasingly successful, at others despondingly unfortunate. I have tried Fleming's, Fisher's, Harvey and Reynolds', and Sawyer's Collodions, and have had four new baths, but invariably have found that after use for a short time my pictures (positives on glass) lose that depth of brilliancy which they at first possessed, becoming a "sort of grey," yet with good sharp delineation and moderate half-tone; the pictures present this appearance on being "fixed" immediately after being taken. I have treated my baths according to the most approved methods with which I am acquainted, and in vain have looked in the *Journal* for many months for a remedy, expecting some other "poor luckless wight" would be asking your assistance to get him out of a similar difficulty. Can you please inform me wherein the defect arises, and supply the means of its remedy?

I should also feel obliged if you could say whether it is absolutely necessary that a varnish should be used at all to prevent *fading,* when the picture can be protected from the *touch* without one. Mr. Cox, of London, intimates it is unnecessary, and I have therefore seldom used any, but have placed a glass plate in front of the picture; yet lately I have thought I could detect a *less sharp delineation* of some of my *oldest* pictures, with a decrease of half-tone, attended with an "*unnatural*" ghastly grey and uneven depth of film.—I am, yours, &c.

J. E. CROWTHER.

Bishop Thornton, Aug. 13th, 1858.

[It appears that you, too, lay all the photographic sins upon the poor nitrate of silver bath. We cannot see why this agent in particular should always come under suspicion. If photographers would but bear in mind that their operations are as much dependent upon their collodion and developing solutions as upon their *baths* they would not invariably attempt to spoil so much good nitrate of silver.

So far as we can judge from your description we are under the impression that it is your *collodion* that is in fault. We do not mean to urge anything against the particular preparations you have named, *but against your treatment of them.* In all probability the greyness of which you complain is owing to excess of density in your film, arising from continued use from the same bottle of collodion, by which a large portion of the ether is removed by evaporation. If this conjecture be correct add a little pure ether to your collodion when you observe the greyness first appear. It is not impossible that your developer may become bad; this will be known by its becoming much discoloured; when this is the case make some fresh. You will find an excellent formula for developing positives at page 76 of the present volume.

As regards the sensitizing bath, for positives we prefer it to be very slightly acid with *nitric* acid, the shadows being thereby kept much cleaner than when acetic acid is in excess, and the lights more brilliant. Of course there should be but very little free acid, or the action will be materially retarded. So long as your shadows are clean you may be sure that your bath is quite acid enough; should it, however, get contaminated by excess of organic matter from ether and alcohol, boil it, expose it to sunlight in a flat dish for some hours, and filter.

We think that your proofs are not safe without some kind of varnish, as metallic silver (which forms the lights) is very readily attacked by sulphuretted hydrogen, chlorine, &c., especially when in contact with organic matter. A film of *uniodized* collodion has been recommended for that purpose, but if used it should be specially made with as *little ether* as possible, substituting alcohol as a solvent, otherwise the picture runs great risk of being itself dissolved.—Ed.]

COMB-LIKE MARKINGS IN FOTHERGILL'S PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Your correspondent "J. H." is easily assisted out of his difficulty: the "comb-like markings" arise from imperfect washing; either this has not been continued until the greasiness has disappeared, or not carried well up to the edges of the plate, consequently the silver solution is more concentrated and sufficiently so to partly coagulate the albumen when poured on those parts, and produce the appearance complained of. This evil has been guarded against in my communications to the Journals, and also in my pamphlet, where I direct that after the plate has been taken out of the bath, placed on a suitable stand, and the proper quantity of water poured on, "incline the plate so that the water may flow backwards and forwards, without running off, *evenly all over it*; continue until all greasiness disappears, so that the solution from the bath remaining on the *surface may be equally mixed with the water in every part.*" When pouring on the water for this purpose, the eye should be brought on a level, so as to look along the surface of the plates; this enables the operator to see whether the water *at once* flows over *every* part, if not, let a sufficient impetus be given to the wave in a direction to cause it to do so, and continue it from side to side and from end to end until the greasiness disappears.

If preferred, "J. H." can adopt the plan recommended in my first pamphlet (this, with my subsequent communication on the subject in the London and your own Journals, has, I find, been appropriated by Mr. Ackland as the essential basis of *his* pamphlet), which is as follows:—Place the plate (say stereoscopic size) upon taking it out of the bath, in a stereoscopic sized dish containing six *drachms*, or sufficient distilled or filtered rain water, incline the dish that this may flow backwards and forwards from end to end and side to side over the plate for fifteen or twenty seconds, until the greasiness is removed, empty out the water and put in a second quantity, avoiding its falling on the plate; let this pass over the surface twice or thrice only; take out the plate, pour on prepared albumen, and proceed as now directed. This plan was abandoned from the liability of plates being *overwashed* by it, thereby decreasing the sensitiveness and increasing the quantity of silver and length of time required for developing the negative.

Now for a word with Mr. Geo. C. Warren, who says in *Photographer*, "I fancy I remember reading in some account of the dry albumen process, *now termed Fothergill's*, that several substances have been used in lieu of albumen, such as dextrine, honey, gum, &c.; *now, I cannot get a satisfactory negative with albumen, the development is so very weak that the picture is good for nothing, &c.*" Can Mr. Warren give any reason why the process discovered and first published by Mr. Fothergill should not be termed "Fothergill's Process?" The principle laid down by him, viz., *washing off with water all excess* of preservative agent almost immediately after being put on, differs essentially from any hitherto employed. With regard to Mr. Warren's non-success, I imagine he must have proceeded upon the information obtained of the process from "*some account he fancies he remembers reading*," and so either washed off too much in the first instance, or too little in the second, after pouring on the albumen, or else that his collodion or bath was unsuitable; for I can hardly think that one evidently no tyro could manipulate so unskilfully as to completely fail with a process so easy and simple as it is. I enclose a print that will evidence that the fault certainly does not rest with the process; it possesses a vigorous appearance and pleasing gradation of tone seldom excelled. The exposure for the negative with a Ross four and a-half inch focal length, small stop, and average light, was forty seconds; the party who took it is on the average successful about nineteen times out of twenty, and has some excellent illustrations of the peculiar suitableness of this process for landscapes. the near objects being well out and clearly defined without the loss of distant ones.—I am, yours, &c.

ALFRED KEENE.

115, *Warwick-street, Leamington.*

CHARGE OF UNDUE FAVOUR.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In May last you published a letter from me relating to the blistering of gelatanized plates, in which I recommended that the plates should be left longer before immersion in the nitrate bath, and the use of *Bolton's collodion*, which I had found the best; this you omitted to publish. Having noticed in your last number Hardwich's and Thomas's collodion recommended by *you*, and Riley's by Mr. Morley, and in a previous number Keene's collodion for Fothergill's process, I consider it very unfair both to Mr. Bolton and myself that it should have been left out. I am, sir, yours, &c.,

Islington, 3rd September, 1858. D. W. HILL.

[We have turned to the paper to which our correspondent alludes when he says that we have *recommended* certain collodions, but we do not find the charge borne out, as will be evident to our readers on reference to page 215, where it is stated that there are several "structureless" kinds in the market, mentioning two, and asserting that there are *many* others, in truth a *mere statement of fact*, but with no recommendation from us to use those named in preference. Moreover, the statement itself was made in a *manuscript* journal, which, when we printed the extracts published, certainly escaped our notice as containing anything for suppression, though, had we observed the names being mentioned, we should, as a general matter of principle, have omitted them. It was, no doubt, the harmless nature of the allusion to a mere fact that prevented its attracting our attention.

Mr. Morley mentions Mr. Riley's collodion in a very simple manner as the one employed by him, but as this is an *amateur* production, under any circumstances there can be no objection to the notice. Mr. Keene's collodion is mentioned at page 183, without anything approaching to a recommendation, in answer to a correspondent, who asks if we can inform him who it was that had advertised a collodion prepared expressly for Mr. Fothergill's process.

We have taken some pains to show our present correspondent the mistake under which he rests, in fancying we have favoured others at the expense of Mr. Bolton, whose name we suppressed in the previous letter, because, if we remember correctly, the phrase employed was as follows :—" I always use Bolton's collodion, *considering it superior to any other*."

Now, although this may be only the opinion of a correspondent, we do think that we should have been fairly open to complaint had we published it so without comment, and as it was not essential to the communication, we preferred omitting it altogether. We trust, however, that the present publication and explanation will be satisfactory to all parties.—Ed.]

INSTRUCTIONS FOR COLOURING GLASS POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—If your correspondents, R. Gorens and Richard Brown, will look over my instructions for colouring collodion positives, in Nos. 20 and 21 of this *Journal* for October and November, 1857, and give them a fair trial, they will, I feel convinced, be satisfied with the result. The shellac solution will be found far superior to any sticky preparation whatever, and with moderate patience and practice any effect can be produced. I would advise them to avoid turpentine in any shape, it invariably produces yellowness after a time. I would add to those instructions that I have found the best varnish for collodion positives to be—

Pure benzole, 2 oz.
Gum dammar, 1 drachm.

Mix, and when dissolved and filtered through clean sponge, it soon dries without heat, and will take the powder colours for tinting very well. Mr. Barnard, colourman, of Oxford-street, keeps in stock a lake colour called *golden yellow*, which is far superior to gold shells; it is not so glaring.—I am, sir, yours, &c.

Fisher-st., Swansea. THOMAS GULLIVER.

ANSWERS TO CORRESPONDENTS.

H. G.—The article in *La Lumière*, from the pen of our friend Mr. Forrest, is simply a translation of what appeared in a previous number of our *Journal*, but we presume that M. Lacan *forgot* to indicate the source whence he obtained it. Doubtless this will not occur again.

Nell Gwyne, Thomas Pearce, J. M., and Figaro. —See our remarks upon the "chromo-photographs," also letter from Thomas Gulliver in the present number.

Wm. Housley.—You state that your landscape lens is "quarter plate size," but omit to mention the dimensions of the picture that gets over-exposed in the centre before the edges are sufficiently impressed: however, if you are not attempting to cover more than five inches by four inches, it is clearly the lens that must be at fault. The collodion you mention is generally good, and can be used in skilful hands, for landscapes as well as portraits, but with a novice an inferior one would probably give better results. To increase the density try the addition of one grain of iodide of potassium dissolved in weak alcohol to each ounce of collodion, carry on the development until the shadows begin to fog, and if still not dense enough clear with cyanide and wash; then, before drying, *again* develope with fresh pyrogallic acid solution, adding a few drops of nitrate of silver; wash *well*, but it is unnecessary to use the cyanide again. The plate ought not to be too dry for exposure within five minutes of its leaving the bath, or even longer in moderately cool weather.

Dandy Dinmont.—We are glad to find you derive assistance from our "Answers to Correspondents;" we endeavour to make them as *generally* intelligible as possible, and have no reason to be dissatisfied with the numerous communications we receive of a similar tenor to your present one, but we cannot reply except through the *Journal*.

Received.—Wm. Ross and A Constant Reader.

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6 ,, × 4 ,, ...	0	8	0	,,	11 ,, × 9 ,, ...	1	13	0	,,
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N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."

The
Liverpool & Manchester Photographic Journal.

New Series. No. 19, Vol. II.—OCTOBER 1, 1858.

In a recent number of this publication we drew attention to some singular results obtained by Mr. Skaife, of Blackheath, when taking instantaneous photographs of some military shells in the act of exploding, but want of time and space prevented our describing the particular apparatus employed by that gentleman for the purpose. We now propose, however, to do so, as it differs in many important details from the appliances usually resorted to.

Within the camera, and immediately behind the back combination of a portrait lens, a *square* opening, somewhat larger than the diameter of the lens, is closed by means of a pair of shutters fitting tightly and slightly overlapping one another by means of a small rabbet or groove in the corresponding edges of the shutters. The material of which they are constructed is that known as "Vulcanite," a combination of caoutchouc with some other ingredient, in extensive use for the manufacture of combs, &c., under a patent of Mr. Goodyeare's. This article is hard, strong, of but little weight, and impervious to light and moisture.

Each little shutter is hinged so as to cover one half of the aperture, and the pair can be opened and shut precisely like a pair of folding doors. The hinges consist of wires attached to one edge of each shutter, and these wires are prolonged upwards so as to project through the top of the camera. Each wire is armed at its upper extremity with a very small reel or bobbin, with little projecting pins or "studs." Now, by turning the bobbin one quarter of a revolution, that is, by bringing any one of the "studs" to a position at right angles to that in which it was previously, the shutter attached to its wire is completely opened, and being of such trifling weight, this operation is accomplished by a minimum expenditure of force.

If we regard the position of the pair of shutters with respect to their proper "bobbins" as *east* and *west*, the "studs" are north and south, and a silken cord connects the *north stud* of one with the *south stud* of the other, the south stud of the former being also connected with the north one of the latter by means of a ring of vulcanized India rubber stretched between them, the elasticity of which keeps the shutters *tightly closed*, excepting when a sufficient force to overcome the power of the elastic band is exerted in an opposite direction.

It is only necessary, then, to rotate one of the bobbins a quarter of a turn in order to cause *both* shutters to be *completely* opened, as any movement of one bobbin is immediately conveyed, but in an opposite direction, to its companion, by means of the silken thread or the elastic band, the latter always coming into play when extraneous force is withdrawn; consequently, if a thread be attached to and partly wound round one bobbin, by a very slight jerk of the thread the shutters may be completely opened, and will of themselves close again in a very small fraction of a second of time. Of course with a stereoscopic bi-lens camera there will be two pairs of shutters and four "bobbins," and by attaching each end of one thread to the extreme two of the four bobbins, and acting upon the centre of the thread by a slight touch *all four* of the shutters will be opened and closed simultaneously, and the same length of time will, therefore, be allowed for the partial or entire exposure of each lens, no matter how short a time that exposure may be for.

We have now described, however imperfectly, the ordinary arrangement of Mr. Skaife's apparatus, but rapid as is its action even in this condition, the movement of the finger was found to be far too slow for some of the experiments that it was considered desirable to make. In order, then, to accomplish a greatly increased rapidity of movement, an addition was made of a little lever to act like the touch of a finger upon the thread, this lever being held in place by a small detent resting in a notch at the shorter extremity of the lever, the detent being raised at will by means of a key or trigger, and the ensuing movement of the lever regulated as to velocity by means of vulcanised India rubber bands, which, by variations of thickness and number, can be made to produce any amount of quickness desired. These bands are preferred to more permanent springs, as they are economical, more under control, and any fracture is quickly and easily repaired by the merest tyro.

We have endeavoured to describe, as well as we are able without the aid of intricate diagrams, this very ingenious contrivance, which is far more simple in fact than in description; those of our readers, however, who feel interested in the matter will probably take an opportunity of examining the apparatus for themselves.

Before entirely quitting this subject we may as well take another of Mr. Skaite's manipulatory hints, for the especial benefit of our friends who work with wet collodion in the field, which enables the operator to dispense with a portion of the troublesome fingering of the excited plate.

The bath containing the solution of nitrate of silver is furnished with a lid, like the cover of a box, fitting over it all round. To this cover the *dipper* is attached, it being somewhat in form of the letter W, the lower angles of which are recurved so as to hold the coated plate much in the same way as the ordinary dipper acts.

The usual dark sliding frame of the camera is altogether omitted, and in place thereof a couple of ledges of about one quarter of an inch in length are constructed at the lower angles of the camera to receive the plates for exposure, a point for it to rest against being provided at the upper extremity.

A piece of ground glass is attached to and depending loosely from the upper part of the camera by means of tapes, and little pieces of cork are attached to the ground side of the glass, very near to, but not quite at the four corners.

A slit or groove in the tailboard of the camera is provided to receive the sensitizing bath when in use.

The mode of operating is as follows:—A hood of black velvet with a window of yellow calico to admit light being placed over the head of the operator and end of the camera, the plate is coated and inserted in the bath by means of the dipper attached to the lid, which closes down upon the solution and keeps out the light.

The ground glass screen, already depending close to its proper place, is lifted on to the ledges and pressed up to its bearings, the focus is then adjusted, and the point of view finally decided on.

The ground glass is next turned back upon the top of the camera, the excited plate lifted out of the bath by means of the dipper and lid close beside the place intended to receive it, and by this form of dipper it can be immediately placed *in situ*, merely pushing it off by applying one finger between the legs of the W. The ground glass is then turned down against the back of the plate, the pieces of cork pressing against it and keeping it in contact with the same bearings previously touched by the focussing screen.

By this arrangement the operator is not encumbered either with separate focussing screen or dark slides, and the plate is ready for exposure while retaining its maximum of sensitiveness.

Although this last described arrangement is almost a necessity in order to avail one's self of the advantage of the shutters, it is clear that the shutters are not a necessity as regards the application of this adaptation.

Among the many incidents by flood and field to which photographers are liable, we cannot resist recounting the following droll occurrence to one of our most deservedly celebrated photographers, Mr. Rejlander, as related by himself in a letter to Mr. Forrest, of Liverpool:—

"When you called I was at Tong Castle, thirteen miles from here, and had been there for some days, until a herd of cattle put an end to my photographing operations. My large camera (the size you may judge of from the focussing glass 18in. × 16in.), with a cloth over it, and resting on three *huge legs*, was about one hundred yards from my tent. I heard a shout from my friends, looked out, and lo! the young bulls and heifers made a charge up hill to within a couple of yards of the camera, then suddenly 'pulled up,' and one of them stepped out of the ranks, lifted up his fore leg, and stamped defiance several times to the three-legged fellow, who scorned to take any notice whatever, except flapping the covering up and down in the wind. Then one more heifer stepped up, when the first put down his head, curled up his tail, and with one fell stroke laid his contemptuous intruder on the pasturage, low and dislocated in the grass. By this time I was only a few yards off, yet I could not prevent the leader from ascertaining with his cloven foot what the focussing glass was made of; and they had, after their success in overthrowing the monster, thereby become so emboldened, that they threatened myself, until, with the fragments of the glass I skimmed bit after bit at them, pricking them a little, and *vowing revenge next Christmas*."

We are glad to find that the Liverpool patrons both of photographic and general art appear to appreciate the productions of the gentleman from whose letter we have just quoted, if we can judge from the expressions of surprise and delight elicited from the large number of persons who have visited Mr. Grundy's establishment, where his finest copy of *The Two Ways of Life*, and a portfolio of his other works, are now "on view."

We learn from the *Athenæum* the following bit of photographic gossip:—

"Among the tourists who have been exploring Brittany this summer, we hear of one party the members of which were lately doing so 'with a purpose,'—namely, the production of a book illustrated by photographic drawings. The party in question consists of the Rev. J. M. Jephson, Mr. Lovell Reeve, and a photographic staff. This party, as we are informed, landed at St. Malo, and after encircling, as it were, the ancient province, began their way homeward through the centre of Brittany. They will bring home with them above a hundred first-class stereoscopic pictures, including cathedrals, calvaries, crosses, castles, antiquities, landscapes, fountains, old houses, streets, costumes, and some of the great Druidical monuments still to be seen along the coast of the Bay of Morbihan. Such a party must have encountered droll incidents by the way; and when they entered a town with tent and apparatus, were probably often mistaken for acrobats or Thespian strollers." We should much like to have an opportunity of chronicling their adventures.

Who is there amongst us who would not be grieved to have any doubt thrown upon the veracious history of "Little Red Riding Hood?" Fortunately this is now never likely to occur; for has not Mr. H. P. Robinson, of Leamington, *photographed* some of the most interesting passages in the life of that distinguished young lady? and has it not been repeatedly asserted that photography can only represent *bare facts*, without the possibility of its imparting either sentiment or poetry? By the way, what a very Methuselah Mr. Robinson must be to be still alive, and yet have flourished in the remote but celebrated period of "once upon a time."

However that may be, Mr. Robinson has produced four very pleasing illustrations of the familiar legend, as follows:

No. 1. Her mother having one day made some cakes, said to little Red Riding Hood, "I hear your poor old grandam has been ailing, so, prithee, go and see if she be any better, and take her these cakes and a little pot of butter.

Here is the child, with hood ready donned, and basket in hand, receiving the cakes from her mother: scene, a homely cottage, with warming pan, bird cage, salt box, rope of onions, &c., in the background. The mother certainly looks rather too young for such a daughter, and the chairs, on the extreme edges of the picture, are a little "out of drawing," as the phrase runs; but otherwise the arrangement is satisfactory.

No. 2. In about an hour Red Riding Hood came nd tapped at the door. "Who is there?" said the Wolf. "It is me, your own little grandchild," the rtless little girl replied, "I have brought you some nice cakes and a little pot of butter." The Wolf, softening his voice as much as he could, said, "Pull the bobbin, and the latch will go up."

This is, to our fancy, the "gem" of the series. Arrived at the cottage door, adorned by "the tendrils of a purple vine," stands the little maid, with frock tucked up and hood a little thrown back, the socks slipping down, as the socks of little people will do, when they indulge in brisk movement; the hand raised to pull the bobbin, and face expressive of expectation and pleasure. Truly a delightful composition.

No. 3. Little Red Riding Hood then went and drew back the curtain, when she was much surprised to see how oddly her grandmother looked in her nightclothes!

The grouping of this picture, though well designed, would, in our opinion, have been more effective had the face of the supposed grandmother been concealed from the spectator. In the present day, in this country, at least, wolves are "illustrious strangers;" and even if it were not so, there are few living ones that would be sufficiently complaisant to allow themselves to be snugly tucked up in bed for the purpose of having their portraits taken. It is also very difficult for a sitter to preserve, for any length of time, the expression of *astonishment* when not at all *astonished.* If not as well carried out as the others, it is not the less well conceived.

No. 4. Little Red Riding Hood hastened home to tell her mother all that has befallen her; nor did she forget that night to thank heaven fervently for having delivered her from the jaws of the wolf.

We are again at the cottage of the mother, the little girl in her night dress at the mother's knee returning thanks for her escape. The background is the same as that of No. 1, but with the remains of a frugal meal on a table in addition.

The expression on the child's face is here in striking contrast to that of the previous picture; there is *truth* in it, the sentiment of devotion being one that can be realised by an innocent child at any time; but this very fact renders it more unlikely that the "sham" should have been successful.

We have rarely seen photographs that have given us more pleasure than the series before us.

We cannot forbear noticing a fact that we have become acquainted with in connection with one of this gentleman's productions, noticed on a previous occasion in these columns, called *Fading Away*, and now being exhibited at the Crystal Palace. It appeals so strongly to the feelings that the artist is constantly receiving letters upon the subject, some being of so painful a nature that he is tempted to regret ever having executed the idea—an indisputable proof of the merit of his production.

THE SOURCE OF WHITE SPOTS ON PAPER POSITIVES, AND OTHER OBSERVATIONS CONNECTED WITH THE SUBJECT OF PHOTOGRAPHIC PRINTING.

By The Editor.

Some time back a report by Messrs. Davanne and Girard appeared in the *Bulletin de la Societé Française de Photographie*, these gentlemen having been appointed by that body to examine various points relative to the question of positive printing, which, however interesting, did not contain anything of sufficient novelty to demand from us immediate notice, especially as at the time of its issue, we had before us an abundance of matter demanding precedence of consideration: we now, however, turn to it with some satisfaction, for, although (as we have already indicated) it contains many things not absolutely new, it confirms very completely the conclusions on the same subject arrived at by our English investigators.

Were it at all permissible to make use of such a word as *rigmarole* in connection with the details of a scientific enquiry, we should have been almost tempted to apply it to the report under consideration ; but, at any rate, we may say that the conviction forces itself upon us more and more—that our allies set to work upon a matter which interests them in quite a different manner from that which we adopt; or rather, they have quite a different mode of conveying their intelligence.

In France the report of a scientific commission becomes quite a work of literary art — the various possible courses of proceeding are passed in review; *this* might be adopted because so and so—but then there is a grave objection on account of something else; *that* might be substituted as the mode of investigation—but that *such an inconvenience* forbids it. Is there not, then, any way of avoiding both of these courses, and yet attaining the object sought? Certainly there is: by doing it in *such a way* we accomplish it perfectly, &c., &c. Then comes the account of how it was done, omitting none of the dramatic disappointments, taking care, however, not to hint at the solution until the last paragraph is reached, where it culminates as in the point of a jest. This is so completely the case that old hands at reading a French report know at once where to look for the pith of it.

In our own country we are far less artistic in these matters; like blunderers, as we are, to use an inelegant but expressive phrase, "*we let the cat out of the bag*" at once, and then explain such incidents and mishaps as may still retain any interest, but by so doing we annihilate that of nine-tenths of what might otherwise have been included in the report. It is true that by acting thus we may give a more condensed account, but we must bid adieu to all *dramatic* effect.

In the report which has called forth these remarks, the course of investigation into the cause of the annoying white spots so frequently found in our paper proofs is indicated, as also the source of those which are most detrimental, which do *not make their appearance* until the proofs are subjected to the action of the hyposulphite of soda, and by which all the previous manipulations are rendered nugatory.

That the spots are due to minute particles of copper or brass is affirmed; and thus the assertion to the same effect published in "Notes and Queries" by Dr. Diamond some five years back, confirmed by these gentlemen, as it also was at the time by many of our own countrymen—the novelty of the present suggestion consisting simply in the presumed source of these annoying particles; Dr. Diamond attributing them to portions of the wires used in the formation of buttons which may have accidentally been crushed up with the pulp when being converted from rags, of which it is made, while Messrs. Davanne and Girard conjecture that they may be owing to minute particles abraded from the machinery employed in tearing the rags, many of the "combs" in some mills being made of brass. Now, although this may seem but a small matter in itself, it is important in its way, as teaching us to avoid papers made where brass machinery is employed in the process, the injurious effects of particles of steel or iron being much more easily guarded against.

We have, in previous numbers of our *Journal*, alluded to earlier portions of the report of these gentlemen especially directed to the influence of the size in the paper, and since writing the above a third portion of their report has appeared, in which the effect of employing different chlorides for the purpose of producing decomposition of the nitrate of silver is considered, as well as the substitution of other haloid salts and organic bodies known to be capable of producing definite compounds more or less impressionable by the actinic force; and here again we have the satisfaction of finding that our own views, which we have long ago published upon the subject of the chlorides, are fully corroborated, viz: That provided they are all in a state of tolerable purity and neutrality, and a corresponding *chemical equivalent quantity* of each of the alkaline chlorides be employed, the results are indistinguishable from one another. This is a point we have insisted on over and over again, having first deduced it from theory and verified it by repeated experiments.

What say these gentlemen upon the subject? "At first, in employing these salts in a state in which they are found in commerce, we observed very noticeable differences, which fully justify the preferences accorded by photographers in order to obtain such and such results." But after testing them as above indicated by us, "the numerous differences which we had previously observed had then *entirely disappeared*, all the proofs shewing a tone and vigour *perfectly identical*."

We have now to call attention to some facts of which we had a vague sort of conviction previously, but which have been fully and satisfactorily established by the carefully conducted experiments of Messrs. Davanne and Girard. These relate especially to the presence of free alkali and free acid in the prepared chloride papers; we give the results in their own words:—"If we compare a proof furnished by the *neutral* bath with those by each of the three others, we remark, in the first place, that of the four, that which is printed in the pressure frame with the greatest rapidity is the one prepared on the bath having *free ammonia*, while those prepared with *free acid or free alkali* are more slowly impressed than that from the *neutral* bath. In a word, that the presence of ammonia *accelerates*, whilst that of an acid or a fixed alkali *retards* the luminous action. As regards colour, the acid and alkaline baths present a tone of the same order, at once more red and clear than that of the neutral bath, whilst the ammoniacal one gives rise to that woody tone habitually observable when ammonia is employed as a fixing agent." They further observe that as acids and alkalies have both a solvent action upon the sizing of the paper, especially when starch of any kind is employed for the purpose, the advantage of using a neutral salting bath will be readily appreciated. Another special point of interest will be found in the conclusions derived from experiments directed towards the substitution of other combinations with a silver base instead of chlorine, for instance, those of iodine, bromine, cyanogen, phosphorus, carbon, sulphuric, acetic, and citric acids.

Papers prepared with the above-named substances were compared as to their effects with one of the ordinary kind from chloride of sodium, which, after an exposure of *five minutes* in the pressure frame had assumed the usual appearance. Long before this, however, with an astonishing rapidity the sheet prepared with bromide had produced an image, unfortunately, however, not presenting the sharpness and vigour of an ordinary proof, being veiled, greyish, and tinted in a somewhat uniform manner. With a rapidity hardly equal to that of the chloride, the proof from the phosphate of silver presented similar defects, though in a slighter degree, to those apparent with the bromide. With the remainder of substances, although impressions of some sort were obtained, one word will describe them—failures.

The facts described convinced the investigators that chlorides, bromides, and phosphates are the only insoluble compounds with silver that can be employed with advantage to impregnate paper for positive printing, but even theso cannot be applied under the same conditions.

It is suggested that where the negative is harsh from excessive contrast of lights and shadows, the addition of a small portion of bromide to the salting solution would probably enable us to obtain good results, as the lights would not then appear so startling, nor the shadows so intense as without this addition. This appears to us a happy idea, and one well worth a trial.

In conclusion, we shall sum up in the words of the authors of the report,—"Amongst all the salts that can be employed in positive photography to incorporate with the paper an insoluble salt of silver, the *chlorides are always those which give the best results*; the addition of a certain quantity of bromide or phosphate may, under the conditions indicated with sufficient precision above, produce happy effects; but we do not consider that either one or other of the two last-named classes of salts employed alone, can give results equal to those that are produced by the chlorides alone."

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE monthly meeting of this Society was held on Tuesday last. The chair was occupied by WILLIAM HOWELL, Esq., and the attendance was much larger than usual, owing to the interesting programme for the evening.

After a paper, in which the analogies existing between the eye and the camera were pointed out, and the undulatory theory of light expounded, had been read by Mr. PERCIVAL JENNS, F.S.A., of Birmingham, HERR PAUL PRETSCH, of London, exhibited several unpublished specimens of his patent photo-galvanographic process; also the celebrated Petzval lens, and pictures taken therewith. He gave an elaborate and interesting description of both; and a hearty vote of thanks was passed to him.

The Treasurer, Mr. OSBORN, then read a paper entitled, "*Suggestions for Improvements in the Camera and Mountings of Lenses*," by Mr. SUTTON, of Jersey. After stating his object to be the improving our means of obtaining a good picture, and not that the instrument may be rendered more portable, or more convenient, or prettier to look at, or cheaper to buy, Mr. Sutton proceeded:

I will assume, for the sake of argument, that the glasses of the lens do their work properly, and produce a good image upon the focussing screen, and that the camera is light-tight, and well put together. The question then becomes—is all extraneous light which enters through the lens prevented from falling upon the image?

I regret to say that, in general, it is not. The photographer has to deal with a thousand stray beams of light which the optician has allowed to enter the camera, and which paint a second picture of their own upon the legitimate image. Let us, then, do battle at once with these straggling rays, so as to get pictures free from accidental blurs and fogs.

The way to deal experimentally with this subject is to take the camera out of doors and expose it to a view that is strongly lighted; then (the end of the camera being open and without the ground glass) to throw the black cloth over your head, and draw it tightly under your chin and the bottom of the camera, and observe what light you see within, bearing in mind that whatever part enters your eye would also fall upon the sensitive tablet in the same place.

I will first discuss the case of the view-camera and lens with a stop in front:—the first thing you will observe in this or any other camera is, that the picture formed by the lens is round and larger than the oblong end of the camera, so that on all four sides of the camera, next to the open end, a luminous image is thrown in the shape of the segment of a circle; consequently, the reflected light from these four segments which enters your eye and renders them visible, from *all possible positions*, must fall upon *every* part of the sensitive tablet. Here, then, we have discovered one source of diffused light, which falls upon the entire picture and produces universal fog, to an extent depending upon the reflecting power of the sides of the camera. These outer segments of the image formed by the lens, and which fall upon the sides of the camera, may be easily cut off by a diaphragm, having an aperture, the size and shape of which is determined by supposing a straight line to travel round the circumference of the back lens and the edge of the picture, and, at the same time, always to pass through the axis of the lens.

In all my cameras, the first thing I do is to insert a diaphragm, made of millboard, at about one-fourth of the distance from the picture to the lens. I make the diaphram like a shallow cardboard box, and push it into the camera to the required distance. Should the lens be raised or lowered by the sliding adjustment in the front of the camera, a different diaphragm must, of course, be substituted for the first. This involves a little trouble. It would answer the purpose nearly as well to put a diaphragm, having an aperture the same shape as the picture, against the back of the lens; but the objection to this plan is, that such a diaphragm would cut off the outer half of all the extreme oblique pencils. In some cases it might be necessary to add a second diaphragm between the first and the lens. The next stray light you will perceive is a ring of light round the lower part of the circumference of the lens; this is seen most clearly from the middle and upper part of the camera. To convince yourself of its bad effect, put the ground glass in its place, and you will find that the shadows in that part of the picture are diluted with diffused light. The remedy is simple enough. The lens should be made half an inch larger in diameter, and an annulus, a quarter inch wide, should cover the outer part of its face; because this luminous ring is occasioned by light, which is internally reflected from the broad outside edge of the lens. Next, remove the lens from the tube, and make your observation again for stray light. In some view-lenses, the tube is shaped like a cone, having the stop at the small end, and the lens at the large end. In this case the inner sides of the cone are lighted by oblique rays, and, consequently, reflect light, which is scattered in all directions by refraction through the lens. This conical mounting of a view lens is as ill-conceived as anything can well be. But suppose the lens to be mounted in a cylindrical tube, having a small stop midway between the open end and the lens, observe what happens: the lower part of the tube, outside the stop, is lighted by the sky; some of this light is reflected through the stop, and lights the upper part of the tube inside, and a confused image of this patch of light is formed by the lens towards the bottom of the picture. The prolongation of the tube beyond the stop is, therefore, of no use. Instead of this, a diaphragm, having a round hole of suitable diameter, should be placed midway between the fixed stop and the lens. When this is done, no light will be seen on the inside of the tube, and the mounting of the lens is perfect. But having a properly-constructed view-camera with a properly-mounted view-lens of the ordinary form, we have now to take care that only the light emitted by the objects of the picture be allowed to fall upon the lens. To effect this, all that is required is to continue the camera in front of the lens to about two-thirds its focal length, and to close the open end of the camera in front by a diaphragm, having a hole the same shape as the picture, and of the proper size.

There are one or two other points connected with the camera on which I shall be glad to have your opinion. I think it very desirable to do away with the ground glass, and to focus upon the sensitive film itself, partly because the ground glass is an extra article to carry, and one very liable to get broken; but principally because a better focus would in general be obtained by focussing directly upon the film. I find it easy to do so when a piece of yellow glass is put before a lens, the head and arms being, of course, inserted in a black bag attached to the back of the camera. Let us see if we can get rid of this black bag operation, and still focus upon the film. My idea is that the dark slide should have two sliding shutters, one in front as usual, the other at the back; and that instead of putting the head and shoulders in a bag, a Ramsden's eye-piece should be used as a focussing magnifier, which might be passed about upon the back of the plate, and be connected with black stuff to the end of the camera. The lenses of this magnifier (which are simply two equal plano-convex lenses with the plane sides outwards), should, of course, be made of yellow glass. One great advantage of focussing upon the film would be in taking instantaneous pictures. The proper moment for uncovering the lens might then be determined to a nicety, and the yellow cap be removed by the mere pressure of the finger upon a trigger. There is, however, another plan for focussing upon the film itself which might be better. Every dark slide, you all know, should be made capable of taking non-reversed pictures if required, by putting the plate with its plain side next to the lens. Suppose then we make the slide so that the plate is put in from the front, and that either side of it may rest upon silver wires, while some simple contrivance fixes it in its place. The back of the slide may then be made of yellow glass, covered with a black curtain, and the focussing may be done upon the film, with the head under a black cloth in the usual way.

With respect to the mounting of the orthoscopic lens I cannot suggest any improvement. The diaphragm which has been judiciously inserted between the back and front lenses appears to be all that is required. I shall be glad to have your opinion on a point connected with the portrait-lens when used with a small diaphragm for taking views. According to my experience it happens with all portrait-lenses, when the diaphragm is placed between the lenses (or in contact with the front lens, it matters not), that a round patch of fog occurs in the middle of the picture when the lens is presemted to an ordinary well-lighted view. Only yesterday I went out for the first time to take some views with my large portrait-lens, which is four inches diameter and thirteen inches focal length, and midway between the lenses of which I inserted a stop three-eighths of an inch diameter; I took three negatives, in the centre of every one of which a dark spot the size of a half-crown was produced. It appears that the larger the diaphragm, the larger and more diffused the spot becomes, so that with full aperture out of doors, the entire plate is covered with a veil or fog, which is thickest in the middle; and when the lens is used for instantaneous pictures, this fog destroys the brilliancy of the shadows in the centre of the picture. I am inclined to think that this spot is occasioned by light which has been internally reflected at the inner side of the convex surface of the front lens, and which forms a sort of cone of light, having the front lens for its base, and its apex a little way nearer to the back lens than the stop. This apex, then, forms the origin, so to speak, of a diverging pencil very near the back lens, which pencil, after refraction through it, forms a confused circle of abberration upon the picture, which occasions the unfortunate spot in question. I have never thought the portrait combination adapted for taking views, even with a small stop, and I shall now feel doubly distrustful of it. The orthoscopic lens, although a double combination, works extremely clean, but that may be because the back lens is actually placed at the stop, so that any supposed cone of internally reflected light from the front lens would not have the opportunity of coming to an apex or point, but would be scattered in all directions.

We shall give a more extended report of the proceedings in the next *Journal.*

CHORLTON PHOTOGRAPHIC ASSOCIATION.

THE monthly meeting of this Society was held on Wednesday, the 8th ult., Mr. DEAN, the Vice-President, in the chair.

A mode of preparing highly albumenised paper was made known to the meeting by the chairman.

Coat the paper in the usual way on albumen, then coagulate with nitric acid, coat again with chlorized albumen, and dry.

The following paper, "*On some Failures by Fothergill's New Process and their Causes,*" was then read by Mr. JOHN HEYWOOD.

On the 25th April last this process was announced to the public through *The Times,* by Mr. Fothergill, who deserves the highest praise for the unreserved manner in which he has made known his discovery; and should these remarks be made public, I would ask the Society to acknowledge the debt we all owe to this gentleman for perfecting a process which has already out-rivalled any dry process known. Mr. Ackland, who has done much to perfect collodio-albumen, and therefore a high authority, says, "this process is far superior to collodio-albumen, gelatine, metagelatine, or oxymel process, possessing a hard surface when dry, is very quickly prepared, yields negatives of great softness and delicacy, developes with rapidity, and, if an opinion may be formed from no deterioration or stains on plates after being prepared a month, we may safely infer they will keep any length of time."

I would also mention that Mr. Keene has kindly given me all the information possible by letter, and without his useful information I should long since have abandoned the process. I hope to make this paper useful to those gentlemen interested, not so much by saying how to work this process, for that has been fully described in the Journals by Mr. Keene and J. P., and lately by Mr. Ackland, but by describing some failures I have met with, and their causes.

1st.—Want of sensitiveness.

Those who have worked the collodio-albumen process, and were accustomed to wash away all the free nitrate, found very little sensitiveness, and looked with doubt upon its usefulness; the error was not in the process, as many of my friends have since discovered, but in their wrong washing. To obtain the greatest amount of sensibility requires very careful washing; if the free nitrate is *all* washed away, as in collodio-albumen, very little sensibility remains; but by washing as described by Mr. Keene, to whose method I shall presently refer, the highest amount of sensitiveness is obtained. The exposure as compared with wet collodion and collodio-albumen, I find thus:—Say, wet collodion one minute, Fothergill's one-and-three-quarters, collodio-albumen three to four minutes. I use this method of indicating the exposure, as lenses and other appliances vary so much that operators are liable to be deceived by the time of exposure given by one operator, and subjects also vary so much in the exposure required. I have, on the same day and with similar light, given one subject one minute and another ten minutes, with no perceptible difference in the negative; proper drying is also requisite,—the sensibility being increased by it. There are two states of dryness, if I may be allowed the expression,—surface dryness and dryness of the film. If the latter is not complete the plate is unevenly sensitive, and developes with different degrees of intensity, the partially dry part is not so sensitive as the thoroughly dry part, the opposite result to what is generally experienced in other processes. In drying place the plate on a corner in the dark for one to two hours to dry spontaneously, then complete the drying by a little heat, and the plate assumes a pale blue colour as the moisture dries off; if dried rapidly by heat, one end is more sensitive than the other; when dried spontaneously, dust, &c., &c., is very apt to attach itself to the film. Marbled patches are apt to be produced if the washing is improperly done and the washing water not well drained away, causing an unequal deposit on the plate. The remedy is easy: drain well, and then rest a moment on clean filtering paper; one and a half drachms albumen will then coat the plate evenly. Lines somewhat circular are caused by the washing water coming to a stand in being spread over the plate; they are rather faint, but still they will injure the finished negative in beauty of appearance. When the washing water is poured on the plate, it will not flow so well as the developing fluid, and requires forcing well up to the edges in a wave. By looking across the plate, it can be best observed. None should be spilled, or that plate will be increased in sensitiveness. In dry plates uniform sensitiveness is important. By moving the water about for thirty seconds, all greasiness will have disappeared; and I pour the water into a bottle for evaporation, and further uses which will suggest themselves. Dark patches are produced round the edges, and spread more or less over the plate, by the bath solution not being well washed away from that part; consequently, when albumen is poured on an unevenly sensitive surface is the result. Let the washing water flow well up to the edges, and this will be obviated. Lines in the direction the plate has stood to drain, producing lighter or darker parts in the developed negative, are generally caused by bath or albumen being on the fingers, and by them transferred to the edges of the plate afterwards running over the film. A damp towel to wipe the fingers after being in contact with either substance, is an excellent remedy. A snip in the edge of the glass, if of any extent, will often produce the same effect; the remedy is obvious. Many have met with the marks similar to those left by a comb in the hair, and have found them very frequent. They are the effect of not washing until all the greasiness has disappeared. This causes the albumen to come in contact with nitrate of silver at too great a degree of concentrated strength, and it is partially coagulated. I have found such success from using Mr. Keene's collodion, that I have preferred it to other samples, either for this process or others; there is such an absence of what has been facetiously termed "blacking and whitewash." Circular rings are caused by a drop of water falling on the plate during preparation, and leaving their impression on the finished negative. I will now describe the modes of washing, and conclude my paper.

1st.—For stereoscopic size: pour on the plate four drachms filtered rain water from the corner, and spread it over the plate evenly as if developing a negative, it will not flow so easily, and requires moving to throw the water where it is required to go. After covering the plate well up to the edges and corners, keep it moving about for half a minute and drain off well, then touch it on filter paper for a second or two before pouring on albumen.

2nd.—Immerse in a dipping bath containing sufficient water to cover the plate well, and after moving up and down several times, take out and drain as before-mentioned. Many plates may be washed in the same water.

3rd.—Place in a vertical bath containing six ounces water, as described by Mr. Ackland, and washed by being raised and lowered ten times.

I believe any of these ways of washing will answer, but the first way, as described by Mr. Keene, gives in my hands the most sensitive plates; in the second the dipping is very easy in comparison with the four drachm washing, which requires care and a little practice; the third, the latter, I have not tried. Washings, I should remark, at this stage of the process, must be with filtered rain or any other pure water.

Albumen may be washed away with common water, and to prevent holes in the sky, as they are termed, flooded with two or three drachms of filtered rain water.

Other failures common to all photographic operations are not a part of my subject, yet to ensure success, they also must be guarded against; these particulars may appear minute and tedious, but they are not so in reality, and the operator may more easily ensure the result he desires by this process than any other.

No one who provides himself with pure water, a suitable collodion, a neutral bath, pyro', developer, and hypo', can fail with care. A bath prepared in March is still working well. I exhibited some negatives taken then by this bath, and those I bring here to-night are prepared in the same, with no addition except a few grains of nitrate of silver; only on one occasion, when it was alkaline, I added two drops of nitric acid to ten ounces.

The thanks of the meeting were given to the Chairman, for presiding; and to Mr. Heywood, for his paper, which concluded the business of the evening.

STEREOGRAPHY.

By Wm. Ross, New York.

The discord usually attendant on the discussion of any other *questio vexata* is not yet ended as far as this subject is concerned, if one may judge from the incessant outpourings of fresh recruits rushing into the wordy warfare.

I have already appeared in the field, as may be seen in No. 18 of the last volume of this *Journal*,* and should have done so a second time in the same volume, only my communication and *materiel* were lost on the road between here and Liverpool.

As that article miscarried in some way I intend in this to go over the same ground as near as I can; not that I hope to do it better, for nothing that I have seen since has induced me to change my views on the subject.

I have always believed that the object was to *see things as they are*, or as they could be seen by both eyes at once, and not to look at an object—say on the right side of the street with the right eye, and afterwards at the other side of the street with the other eye, at stations equal to thirteen or fifteen *metres* apart.

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* See also vol. iii. page 72, of this *Journal*.

Being professionally conversant with perspective, I was at no loss to understand that anything projected by its rules was truly a *monocular* view, and that a stereographic picture must be composed of two such from different stations adjacent to each other, and on the same horizontal plane, forming what may be called a *binocular* view, when super-imposed on each other by means of the stereoscope.

Now the question arises, what is the proper horizontal distance, and how can it be ascertained? Assuredly the rule of thumb cannot be the proper rule for a mathematical solution of any difficulty, whether in optics or in anything else. Many adopt no other rule, while some others have some empirical formula depending on the *distance* of the object; one in twenty-five being Professor Wheatstone's rule, so that a tape line or a surveyor's chain is a necessary adjunct to the stereographic tourist.

I quote the following paragraph from Mr. Berry's paper, read before the Liverpool Photographic Society in June, 1856, and which may be found in the *Journal* for that month:—"I believe, then, if we desire to depict, by any photographic process, a miniature representation of (for example) a street view, which shall faithfully represent the original when viewed through the stereoscope, we must use an instrument which shall be constructed as near as possible in accordance with the optical arrangements of the human eyes, to which only it is destined to be applied."

To this doctrine I fully subscribe, and I believe the present Editor of the *Liverpool and Manchester Photographic Journal* holds opinions not very dissimilar to the above; but neither that gentleman nor Mr. Berry have given us a formula representing, in a concise manner, the application of their doctrine to the stereoscopic camera having lenses of some particular focal length, far less for lenses of *any* focal length whatever, that may be applicable to the purpose. This I now propose to do, and I take my data for "the optical arrangements of the human eyes," from the work of Dr. Mackenzie on "*The Physiology of Vision*," (London, Longman & Co., 1841), a work replete with optical information, and which ought to be in every practitioner's library.

The close analogy between the ordinary camera and the eye is too well known to be dwelt upon. Each eye is a distinct camera, having each its own lens and surface on which the image is formed. Each eye forms its own picture round its own axis—each picture being precisely of an equal area to that formed by the other eye, and this is precisely the conditions we have to meet in producing stereographic pictures to be viewed by the stereoscope. Taken singly, each of these pictures formed by the eyes is a *monocular* picture, just as is a perspective view from one station; and in order to ascertain the distance between that station and another, from which the other perspective view is to be taken to match the pair formed by the eyes, we must make that distance precisely *proportional* to the distance between the two eyes, and neither less nor more.

In investigating this subject, we do not require to notice either the correction or non-correction of the aberrations of the eye, nor need we do more than mention the controverted question of the adjustment of the eye to different distances; for if we consider the distance between the retina and the optic centre of the eye to be the focal length of the eye for objects infinitely distant, it will require no adjustment whatever for any object beyond the distance of distinct vision, provided it subtends an appreciable angle. It is well known that every lens, whatever may be its focal length, has conjugate foci for all distances up to a certain number of its focal lengths, while every object beyond that distance is in focus at the same time. That distance varies in the number of feet, yards, &c., for every lens of different focal length; but by using the focal length as the unit of measure, the number of focal lengths is constant for every lens, as well as for the eye.

The following proportions of the eyes are extracted from Dr. Mackenzie, pp. 72 and 98.

Axis of eye ....$\frac{19}{20}$ of an inch
Axis of *transparent* media of eye ...$\frac{18}{20}$ „
Diameter of crystalline ....$\frac{7}{20}$ „
Aperture of pupil varies from $\frac{12}{100}$ to $\frac{25}{100}$ „
Distance between centres of pupils, $2\frac{4}{10}$ inches
Distance from optic centre to retina, $\frac{6}{10}$ of an inch
(focal length of eye).

Taking the focal length of the eye as the uni of measure, we see that the distance between the centres of the pupils is equal to four times the focal length.

A binocular view may therefore be enunciated thus:—*It is a combination of two monocular views formed by a pair of equifocal lenses* (the eyes) *taken from two stations situated horizontally apart, at a distance equal to four times the focal length of the lenses employed.* Hence the formula is, when F is the focal length and D the horizontal distance of the stations apart,

$$D = 4F.$$

This formula will apply to lenses of any focal length whatever, so that lenses of short foci may be used for very *near* objects, and as such lenses would give to distant objects too minute a character, lenses of long foci should be used for the latter.

The gross exaggeration in the distance from which the pair of views of very many of the stereographs sold have been taken, is such as to render them contemptible as works of art, or even of curiosity. Such exaggeration can only affect the *horizontal* proportions of objects, leaving their *vertical* proportions of the proper height, while they are so dilated horizontally as to be downright caricatures of the original. In cases where the object is so distant as to render a great separation of the stations necessary to shew its solidity, the impression ought to be taken by a lens of a corresponding focal length. "The celebrated view of Paris," which was taken at fifteen *metres* apart, ought to have been taken by a lens of four *metres* focus!

The greatest stereoscopic effect is always produced on the bodies or objects nearest the foreground, the objects in the background having little or no stereoscopic appearance, beyond the fact that they stand behind the other objects, which really appear to stand out in relief.

These near objects should therefore be the principal portion of the picture; and hence, buildings consisting of a plane façade only cannot form pleasing stereographs from a near station, unless the relief is produced by a conspicuous object or group between it and the camera.

I have just finished the fitting up of a waggon for the purpose of a camera, in which to take *views* of all sizes up to 24 × 20 inches, and of every kind—scioptric, stereographic, and cyclopic, by the wet collodion process, and shall, if encouraged, send the negatives to Britain for sale. I use lenses of different focal lengths, all of them achromatic. Those I use for stereographic purposes are in pairs, four and a half inches and twelve inches focus respectively. The apertures are pierced in the waggon at the proper horizontal distances apart, and are so large as to permit a considerable adjustment of the lenses when the waggon stands on sloping ground, so that both pictures can be taken on the same level. The lenses are fitted to the proper distance apart, according to their focal length, as herein indicated, and the caps of each pair are so connected as to be opened and closed simultaneously and instantaneously. The closed waggon is itself the camera, every operation, from cleaning the glass to finishing the impression, being performed in it.

OPTICAL AND CHEMICAL EXTINCTION OF THE CHEMICAL RAYS.

At the meeting of the Royal Society, held on 18th June, 1857, a third communication upon "*Photochemical Researches*," was presented by Prof. Bunsen and Henry E. Roscoe, B.A., Ph.D. On "*The Optical and Chemical Extinction of the Chemical Rays*," they state:—

"In order to determine whether the act of photochemical combination necessitates the production of a certain amount of mechanical effect, for which an equivalent quantity of light is expended, or whether this phenomenon is dependent upon a restoration of equilibrium effected without any corresponding equivalent loss of light, we must now study the phenomena occurring at the bounding surfaces, and in the interior of a medium exposed to the chemically active rays.

"If I_0 represents the amount of light entering a medium, and I the amount issuing from the medium, we have $a I_0 = I$, when a represents the fraction of the original amount of light which passes through the medium, on the supposition that the light extinguished is proportional to the original intensity of the light. The first series of experiments was made with the view of determining this point. The intensity of the chemical rays proceeding from a constant source of light was measured before and after passage through a cylinder with plate-glass ends, filled with dry chlorine. The amount of transmitted light, I, was determined for various intensities of incident light, I_0 and the fraction $\frac{I}{I_0}$ was found to remain constant, proving that the absorption of the chemical rays varies directly as the intensity of the light. From this result, the general law of the extinction of the optical and chemical rays in transparent media may be deduced. For, as it has been shewn that the amount of light transmitted through a medium of finite thickness is proportional to the intensity of the incident light, it may be assumed that this same relation will hold good for an infinitely thin medium. According to this supposition, the relation between the transmitted light, I, and the thickness of the medium, is represented by the equation $I = I_0 . 10^{-ha}$ and $a = \frac{1}{h} \log \left(\frac{I_0}{I}\right)$, in which I_0 represents the light before transmission, I, that after transmission through a layer of h thickness, and $\frac{1}{a}$ the thickness of absorbing medium by passing through which the amount of light has diminished to $\frac{1}{10}$th.

"The difference between the incident and transmitted light, *i.e.* that lost in passing through the medium, is made up (1) of a portion reflected, and (2) of a portion absorbed or extinguished. We have experimentally determined the values of the coefficient of reflexion ζ, and the coefficient of extinction a, for the glass plates used in our cylinders. We found that 4·86 per cent. of the chemical rays, from a flame of coal-gas, which fall perpendicularly on a surface of crown glass, are lost by the first reflexion; and that the amount of light absorbed in our plates was so small as to fall within the limits of observational errors. The value of ρ for the plates of glass employed was found to be 0·0509. When the coefficient of reflexion for glass ρ is known, the amount of light a transmitted by n plates is found from the formula $\frac{1-\rho}{1+(2n-1)\rho} = a$. Hence the amount of light transmitted by two plates is 0·823. We have confirmed the accuracy of the calculated result by direct experiment, and obtained a value 0·800, or a mean of 0·811 as the coefficient of transmission of our plates.

"If all the transparent media have not the same coefficient of reflexion, the order in which the media are placed will affect the amount of transmitted light. We have given an example of the mode in which the calculation must in this case be made, in the determination of the coefficient of extinction of water. We found that the amount of light absorbed by a column of water 80 millimetres thick was inappreciable. According to the method here adopted, it is possible to determine the coefficient of reflexion of all transparent fluids for the chemical rays. We have only determined the coefficient of reflexion for American mica; for the chemical rays of a coal-gas flame ρ was found to be $= 0·1017$. From the coefficient of reflexion, the refractive index *(i)* can be calculated from the equation

$$\rho = \left(\frac{1-i}{1+i}\right)^2 \text{ or } i = \frac{1-\sqrt{\rho}}{1+\sqrt{\rho}}.$$

The refractive index for crown glass thus calculated from $\rho = 0·0509$ is found to be $i = 1·583$; the refractive index for Fraunhofer's line H has been optically determined to be between 1·5466 and 1·5794 (Buff's Physik).

"Another important element in the investigation of photochemical extinction is the law according to which the optical coefficient of extinction varies with the density of the absorbing medium. A series of experiments proved that the amount of chemical rays transmitted through a medium varies proportionally with the density of the absorbing medium.

"We may now proceed to the investigation of the original question proposed, viz.—in the combination of chlorine and hydrogen effected by the light, are the chemical rays expended in a relation proportional to the quantity of hydrochloric acid formed? The first point to be determined, in order to answer this question, is the coefficient of extinction of pure chlorine for the chemical rays of a coal-gas flame. The amount of light was measured before and after transmission through cylinders filled with chlorine.

(To be continued.)

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

A HINT UPON PHOTOGRAPHIC GLASS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I noticed a letter from our mutual friend, Mr. Hele, about patent plate glass becoming marked and injured by exposure to damp; this is the case with all glass the surface of which is artificial. In winter we are obliged to keep it in a room with a stove, and in no case should it be wrapped in a newspaper or any printed matter, as I have seen frequent instances of the letter-press appearing through the collodion film after the picture was taken. Polished flatted crown glass is not liable to this defect.

I am, yours, &c.,

Liverpool, 10*th Sept.*, 1858. J. A. FORREST.

P.S.—I omitted to state that if our friend Mr. Hele would nail some felt upon a piece of wood, and apply a little *rouge* moistened in water, and keep rubbing it by strong pressure, he will get rid of the stains upon the glass.

[The above hint, coming as it does from a gentleman who is both an ardent photographer and extensively interested, commercially, in the article of glass, will doubtless be accepted as one of considerable value, as it is not frequently that practical experience in both directions is united in the same individual.—Ed.]

PYROXYLINE, GLASS POSITIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—(1) I am going to try my hand at making pyroxyline, and I wish to know the strength of sulphuric acid as usually kept by druggists, and the quantity to use with commercial nitre.

(2) Would Mr. Hughes be kind enough to give a formula for positive collodion? He has written several letters on the subject, and could, I think, give a good one.

(3) I have heard that the stereoscopic effect can be produced without lenses; if so, how is it done?

With thanks for your kindness in getting me out of former difficulties, I am, yours, &c.,

Ballybofey Sept., 1858. AN AMATEUR.

[There is in general but little difficulty in procuring sufficiently strong sulphuric acid for making pyroxyline by its addition to nitre, even from the oil shops, under the name of *oil of vitriol*, the specific gravity being about 1·835. The nitrate of potash had better be obtained from the druggists, and should be well dried before a brisk fire, reduced to a fine powder in a mortar, and weighed. To every 400 grains of dried nitre, add one fluid ounce of oil of vitriol (sulphuric acid) previously diluted with about one drachm of water just before using, which dilution causes a *considerable elevation of temperature.* Stir until effervescence ceases, and while still hot immerse the paper or cotton to be acted upon, the former requiring about half an hour's exposure to the influence of the chemicals, the latter about half that time. This is best done in a wide mouthed bottle that can be loosely stopped. 2. Mr. Hughes will no doubt respond to your wish. 3. What do you mean by "stereoscopic effect," the production of stereographs or the method of viewing them so as to produce the impression of relief? Both are *possible*, but not always convenient.—Ed.]

ADJUSTABLE PLATE FRAME.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In your last number (Sept. 15th), there is a notice and sketch of an adjustable frame said to be patented by Mr. Stock; this identical holder was made for me five years ago by Mr. James White, Renfield-street, Glasgow, and has since been applied by him to hundreds of cameras. He has made them I believe in various materials, but never in gutta percha, which would not suit at all in my opinion.

Helmsburgh, I am, yours, &c.,
Sept. 17*th*, 1858 CHARLES KIDSTON.

[American patents are often "mare's nests." We have also another letter from a subscriber at Halifax stating that he has had one in use for twelve months or more. While objecting to the so called "patent" right, we have a good opinion of the arrangement described, always excepting the material employed.—Ed.]

DECREASE OF THE INTENSITY OF NEGATIVES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Having seen how kindly you answer the numerous queries of perplexed young photographers, I trust you will include me among that favoured number. The other day I took a most beautiful negative (a portrait), the shadows of which were exceedingly sharp and delicate, but when I came to varnish it, the intensity of the negative was considerably lessened, causing it to appear of a bluish tint when viewed by transmitted light. A print from it was not nearly so sharp, and most of the delicacy of the half-tone was completely destroyed. If you can suggest a remedy I shall be much obliged. If the colour of the negative could be changed to a more yellow hue, I think it would be all that would be required.—I am, yours, &c.

Liverpool, A CONSTANT READER.
Sept. 6, 1858.

[The delicacy and sharpness of detail in the shadows of a picture are not of themselves sufficient to make a good negative; they are simply an indication that the correct exposure for the collodion, &c., employed has been obtained. It is probable from your description, either that the development was interrupted at a stage too early to have allowed of a sufficiently intense deposit, or that the collodion was too thin for a negative, or too lightly iodized. In order to change the colour now it would be necessary to entirely remove the varnish, but this would probably destroy the picture altogether. You may, however, still get good proofs from it by the process of developement instead of sun printing, by giving very short exposure, and developing highly; we should recommend albumenised paper for this purpose, and gallic acid as a developer.—Ed.]

DIFFICULTIES IN FOTHERGILL'S PROCESS; BAG FOR CHANGING PLATES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I shall be much obliged for your valuable assistance in the following matters, which as regards the first I think may be caused by my own unskilfulness in the manipulation.

After developing some plates prepared by Fothergill's process agreeably to Mr. Keene's useful suggestions, I find occasionally that the edge of the plate becomes stained with a long brown or dark slaty border, on which the film curls up and peels off on drying. I dont know whether this is attributable to the quality of the collodion or to some neglect on my part, but I shall be glad to be informed how it is to be avoided.

Not long ago, making an excursion to South Wales, I took a few stereoscopic plates with me prepared as above, and transferred them for exposure to the slide in a dark closet by the light of a candle. Several days after exposure on my return home, I tried to develop them, but found they turned to a grey muddy colour in developing, without a vestige of any object, and in fact were utterly spoilt. I am inclined to suppose that it was caused by the candle-light, which was probably injurious to a sensitized plate.

The difficulty of transferring plates brings me to Mr. Lawson Sisson's "Treatise on the Turpentine Waxed-Paper Process," at page 29 a bag is described for this purpose which I have no doubt would be most useful if I could make out the description, which is as follows:—

"For greater security in changing the papers in the open air, I employ a black cotton velvet bag, lined with yellow calico, the ends of which have a strong vulcanized India rubber ring running loosely in a hem so as to close tight round the wrist. In this I can change either papers or dry collodion plates."

I am puzzled by the word "ends" and how the plates and slide are to be introduced, the shape, also, of the bag. Perhaps some of your readers who have used such a one can enlighten me, as I wish very much to have one made.—I am, yours, &c.,

September, 1858. W.

[The dark brown line which readily peels off is probably owing to an error in coating the plate, the collodion at that part not having become so dry as the remainder before immersion in the sensitizing bath. It may be caused also by some of the water from the washing collecting at the lower edge while draining. Perhaps Mr. Keene may furnish a reply on this head. Regarding a bag for changing plates, we have formerly employed one of yellow calico, of three thicknesses, with openings for the hands *at the lower angles* furnished with elastic bands, the mouth of the bag, also supplied with elastic, fitted over the end of the camera (the box of plates being put into the camera previously). We had also a couple of circular pieces of yellow glass, about the size of spectacle lenses, sewn in the side of the bag, with another piece of elastic across them, which was slipped over the head when in use, so as to bring and keep the glasses in contact with the eyes, like spectacles, thus enabling us to observe what we were doing. The plates we then used were $8\frac{1}{2} \times 6\frac{1}{2}$ inches in dimensions.—Ed.]

LOSS OF POWER IN YELLOW GLASS FOR RENDERING OPERATING ROOMS CHEMICALLY DARK.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I notice another letter in the London Journal on the subject of yellow glass changing in its qualities of arresting the actinic rays. It is pretty well known that glass is coloured yellow by the means of chloride of silver, and that the colouring is merely on the surface. It is also known that ordinary glass changes in its colour by exposure, arising from the presence of manganese or arsenic in the manufacture. I think it very probable that this will account for the change that has taken place in the yellow glass complained of by "W. Ponting" and "R. H. P.," and thus the non-actinic qualities of the glass have become neutralized—another instance of the importance of expelling these ingredients from the manufacture of glass.

I am, yours, &c.,

Liverpool, Sept. 22, 1858. J. A. FORREST.

ANSWERS TO CORRESPONDENTS.

A Subscriber.—The patent claimed is in America, not in this country.

An Amateur.—For your good opinion expressed in your private communication, accept our best thanks. You will perceive that we had already decided upon the course you suggest.

M. R. Backwell.—We have no further information relative to M. Godefroy's process than what we published in our 1st August number, page 192. The theory is sufficiently simple and the instructions explicit; but we certainly are not so sanguine relative to the excellence of the results as the writer. Indeed we have learned to deduct a large per centage from the promises held forth on both sides of the channel before we consider them brought upon a par with reasonable expectations, but this per centage is decidedly larger for the south than for the north side. We cannot, however, see how it is possible for paper to rival glass for negatives, even under most favourable circumstances.

Thomas Gulliver.—Your communication is in type, and shall appear in our next.

Received.—"The Photographic Teacher;" review in our next.—"Jahresbericht, über die Fortschritte und Leistungen im Gebiete der Fotografie und Stereoskopie;" and "American Ambrotype Manual."

SKAIFE'S PATENT.

PROOF PRINT STEREO, counterchecked, of No. 1 "MORTAR PHANTOM," with copy of explanatory letter published in *The Times* on the 14th of July, sent post free on receipt of 3s. in stamps, adddressed to T. SKAIFE, Vanbrugh House, Blackheath.

MOULDED GLASS TRAYS,
FOR DEVELOPING, &c.
STEREOSCOPIC PICTURES,
By any of the Dry Processes,
ONE SHILLING EACH.
Sold Wholesale and Retail, by
J. J. PYNE, CHEMIST, &c
63, PICCADILLY, MANCHESTER.

CALOTYPE PAPER.

MR. WOOD, 88, Princes-street, Edinburgh has on Sale a small quantity of Calotype Paper carefully prepared by Mr. Henry Taylor, late of Godalming. Size 10 × 12, at 10s. per doz., post paid.

Agent for the Liverpool and Manchester Photographic Journal.

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The
Liverpool & Manchester Photographic Journal.

New Series. No. 20, Vol. II.—OCTOBER 15, 1858.

How many exquisite works of art, in the shape of photographs, drawings, and engravings, are annually, not to say daily, destroyed by want of a little care about their preservation! We do not allude to those which find a resting place between the pages of a book, or are poked in amongst a pile of unbound music, or even to those that receive the unusual attention of being loosely wrapped by their discriminating owners in a sheet of old newspaper. To such careful patrons of art we have not a word to say; they, surely, have a perfect right to do what they will with their own; but to those who are so *extravagant* as to consider their productions worthy of the expenditure of a trifle in the purchase of a portfolio, we have something to suggest, so that in future they need not spend their money for that which satisfieth not.

Portfolios as ordinarily constructed, even of the more expensive kind, are sadly deficient in some of their most important qualities. Let us consider what are the requirements of a good portfolio, and then see how far they are usually fulfilled. It should be sufficiently rigid to prevent injury to the contents from creasing, yet not too heavy. It should be adapted for containing either many or few specimens without appearing either bloated or exhausted. It should, above all, carefully exclude dust and dirt of every kind, especially smoke; and lastly, it should be so contrived that its contents can be readily and conveniently examined without injury. Now we do not hesitate to affirm that with ordinary portfolios these conditions are none of them more than partially fulfilled. It is, however, with much pleasure that we feel able to acquaint our readers with the fact that portfolios are to be had which do completely comply with all the requirements, and include, also, some other conveniences.

An American gentleman, of the name of Harvey, an artist by profession, and, therefore, fully alive to the exigencies of the case, has invented and brought out one that we consider calculated to prolong the life of many photographs otherwise doomed to destruction; and we will endeavour to describe more minutely its construction.

The back of Mr. Harvey's portfolio, though perfectly flexible, instead of being attached to the extreme edges of the boards forming the sides, springs from a part some little distance *within the margin*, thereby becoming suspended, as it were, when the portfolio is closed, and not allowing the contents to project beyond the rigid sides, even when containing but few specimens, thereby obviating the liability of the margin of the mounts to become creased in those parts. This arrangement also produces another good effect: when opened the back is stretched flat, and the photographs or drawings do not become folded over one another at the edges, but can be turned over for examination with the utmost facility.

There are three flaps to exclude dust, but these are placed *externally*, and are furnished at their junction with small flexible gussets, in order to preserve the integrity of the corners. Each flap has attached to it an elastic band and hook, all three fitting into a square opening attached to a small central lock, and by a simple contrivance this is made to preserve the contents from unauthorised inspection. Some are furnished with a strut for supporting one side, thus affording a convenience, when in use as a portfolio, or of converting it into an impromptu easel; while a part of the wooden frame-work of some of the larger forms is made to project somewhat beyond the back, and supplied with little wheels, upon which the whole readily runs, and with a sliding piece to the strut allows the instrument to act as its own stand.

We remember seeing specimens exhibited at one of the meetings of the Photographic Society; but for want of somebody in attendance to shew their peculiarities they did not obtain the attention they merited.

We strongly advise all our readers who care for their photographic treasures to inspect these portfolios for themselves, and have only to add that they can be seen at No. 16, Rathbone Place, Oxford Street, London.

We regard it as much a matter of duty to make our readers acquainted as early as possible with what we consider likely to advance our art, coming from what source it may, as to warn them against that which we have reason to conclude is calculated to do injury to the same; we, therefore, desire to draw their attention to a suggestion recently put forth by Mr. Sutton, of Jersey, based upon experiments which he has made, relative to the manufacture of an improved kind of collodion, which he has termed "Alcoholic Collodion," and which appears to us, upon *theoretical* grounds, to be perfectly sound in principle.

We have not yet been able to prepare any for experiment, but hope to find time to do so shortly, and report the result.

The formula given is as follows, viz.:—

Take of
Absolute ether......S.G., 720...... 1 oz.
Absolute alcohol ...S.G., 794...... 4 oz.

Dissolve in the above mixture from thirty to forty grains of pyroxyline—this forms the plain collodion, of which three parts are to be added to one of the *usual iodizing solution*, which last, we believe, means alcohol, s.g. 825, saturated with the iodide of potassium, this salt not being soluble in absolute or anhydrous alcohol.

The advantages are stated to be—

1st.—Greater convenience in coating large plates, especially in warm weather, owing to the slower evaporation of the alcohol than the ether, and consequent facility for more deliberate movements.

2nd.—Non-contractility of the film, which is structureless, and adheres firmly to the glass.

3rd.—Greater facility in becoming properly acted upon in the exciting bath, and in being readily covered with the developing solution. These are all points of importance, and it appears to us as probably particularly well adapted for use in the various dry processes. We understand that it is to be manufactured for sale by Mr. Sutton, but as he has given the detailed particulars of its composition, we have no hesitation in recommending a careful trial of its capabilities.

That photography is lending its aid to other branches of science, may be partly gathered from the following extract from the "Report of the Kew Committee of the British Association," presented at the recent meeting at Leeds:—

> The Photoheliograph, erected in the dome of the observatory, was fully described in the last Annual Report; it has been repeatedly at work since the beginning of last March, and excellent photographic pictures of the solar spots and faculæ were obtained. Certain alterations have been made by Mr. Welsh, in order to regulate the time of exposure of the collodion plate to the sun's action; with these alterations the instrument gives very good results, but certain improvements in the arrangements of the secondary magnifying lens are under consideration, with the view of avoiding the depiction on the collodion negative of the inequalities of the glass which compose it.
>
> The Committee recommend that arrangements should be made for the appointment of a competent assistant, who will undertake the taking of the photographs, and the preparing of a certain number of copies for distribution to some of the principal British and Foreign observatories.

And again,—

> An additional assistant is now *indispensable* as a photographer.

During the sittings of the "Chemical Section," several papers upon photographic subjects were read, some of which will be found in abstract in another column; there is one of them, however, of sufficient importance to claim special notice here; we mean that of Mr. R. J. Fowler, "*On a Process for the Estimation of Actinism*," which, if it fulfils the expectations of the author, promises to lay the foundation for a simple "Actinometer," one of the most important photographic desiderata.

The local Photographic Exhibition, held in the Town Hall, was in many respects satisfactory. The first division, "Local Scenery," occupied one of the smaller rooms. The second division, "General Photography," comprised forty views of interesting Indian subjects, by Robertson, contributed by a lady. The third division, "Special Processes," though containing, in *juxta* position, several good illustrations of the well-known processes, including some negatives on collodion, contrasting those developed by iron salts and pyrogallic acid, together with proofs from both, was not so well represented as had been hoped for. A very instructive negative, from America, by Whipple's modification of the collodio-albumen process, must not be forgotten.

A few days ago we made a "visit of inspection," according to a practice we adopt where we know that our presence is welcome, to the factory of Messrs. Murray and Heath, in Piccadilly, to see what novelties and improvements in the way of apparatus they had in hand, and were glad to find them producing not only what they want to sell, but what photographers want to buy, a distinction not always attended to. To begin with we found cameras made of plain Honduras mahogany, rigid, but of little weight, and if not so pretty as those made of Spanish wood, far more useful. There was a very large camera adapted for use with a monster lens of Jamin, the latter being of seven inches aperture. The principal novelties in the camera were a convenient mode of fixing a folding tail-board, and a highly useful method of throwing the adjusting rack "out of gearing," so as to enable the operator to make the rough adjustment of the focus quickly. We noticed an improvement in the ingenious stereoscopic camera of Marriot, and a new form of rack for boxes to contain dry plates. Mr. Smart's portable tent has been made still more portable, and is an excellent substitute for a dark room when away from home.

We call attention to a suggestion thrown out by Mr. Gulliver, of Swansea, about the use of syrup in a novel manner when using moist collodion, operating at a distance from our usual conveniences, as one promising certain advantages.

We are somewhat amused at a statement which we find in *Cosmos*, expressive of the "unspeakable surprise and pleasure" with which a letter from M. de Brébisson has been perused in *La Lumiere*, and which letter has been regarded as "the most admirable reply that could be made" to the "attack" of M. Humbert de Molard; the "attack" consisting in a pretty strong expression of the speaker's opinion that the fancied advantage of the "nitrate of uranium" printing process, as then practised, was a "myth." The "admirable reply," in our opinion, certainly proves it so; for not only does it require that the exposure should be *longer* in the pressure frame than with chloride of silver, but equally to be toned with salts of gold and fixed with hypo-sulphite of soda and all its consequent washings.

In the same journal *(Cosmos)* we find a letter from the Hon. Henry Fox Talbot, to the following effect:—Having stated that he published, five years ago, his process for photographic engraving on steel, and wishing to apply it to the multiplication of photographs from glass and paper, found it deficient in its capabilities of rendering correctly the half-tones and gradations of tint which render a photograph so pleasing. Various subsequent attempts, both in England and France, have confirmed these results. It has not been until the commencement of the present year that Mr. Talbot's health permitted him to resume his experiments, when he again encountered his old difficulty, but fortunately this time he has found the means of conquering it, and is now in possession of a mode of engraving both simple and convenient. A complete description of the process is promised to be shortly published by the inventor.

On the eve of publication we have received the following interesting information from our excellent friend and ardent photographer, Mr. Wood, of Princes Street, Edinburgh (agent for this *Journal*):—

"There has been a very curious phase of photography developed in this city within the last few days, by a gentleman here; but I can give you no account of the *modus operandi*. It consists in taking stereoscopic pictures from a *plane* surface. The subject chosen by the operator, in this instance, is 'Cruikshank's History of the Bottle'—a series of spirited woodcuts, which you must have seen, published several years ago. The stereoscopic effect is admirable, and will, as soon as seen, set the wits of photographers on a voyage of discovery. The gentleman's name is Mr. Sang, an amateur."

ON "FOCUSSING" THE CAMERA.

By the Editor.

We fancy the title of this paper will call forth no small amount of astonishment and disdain amongst many of our readers. What can be said upon such a subject that is not already well known to photographers? To some photographers perhaps—but to others, shall we venture to say to many, possibly to most, that they have still somewhat to learn upon this subject, simple as it appears.

These remarks have been called forth principally from our having been witness to some rather ludicrous efforts on the part of a brother operator to obtain a sharp focus without the requisite conditions being present. The case to which we allude was one where the intention was to produce in the camera a copy of an engraving slightly enlarged, but the greatest distance possible between the subject and the ground glass was *less than four times* the length of the principal focus of the lens in use, consequently there was no point at which the lens was capable of adjustment that would allow of the conjugate foci being included within the prescribed limits. Now, had our friend been blessed with a little optical knowledge, he would have been spared the trouble and mortification he experienced. This little incident led us to reflect upon certain other circumstances we had at various times noticed in connexion with the subject, and we came to the conclusion that a little public ventilation of it might very probably not prove unprofitable.

In examining a number of photographs it rarely happens that we do not find some amongst them that are altogether or partially indistinct from want of due attention to the correct focussing in the camera; such inattention giving rise to a peculiar indistinctness of outline, or haziness of detail. It is true that in certain exceptional cases, this defect is not altogether remediable over the whole surface, but it very rarely happens that some amount of mitigation cannot be applied.

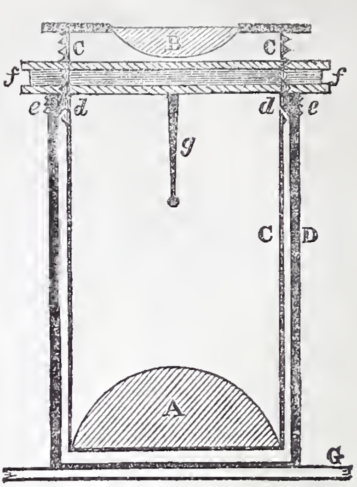
We know that it is very much the fashion with some artists to decry what they call the *painful* amount of detail visible in photography, and stigmatise it as hard and unpleasant; as a remedy for the evil they propose to take pictures that are a little *out of focus*. This will certainly remove the *hardness*, though we cannot at all agree in attributing the defect complained of, frequently with some justice, to the clearness of definition, but rather to other errors of manipulation.

We are then advocates not only for "sharp" focussing, but for doing this with the utmost possible distinctness attainable over the whole field of view. If the subjects to be delineated be pretty well in one plane, the accomplishment of it is not difficult; but if the planes in which they are situated be tolerably distant from one another, it then becomes of importance to bring all our optical information to bear, so as to effect our object with the least possible inconvenience.

There are many photographers who perform the operation of focussing upon the ground glass plate with the unassisted vision, others use some kind of lens as a help, and a few—who well know the great value of such an aid—avail themselves of the assistance of an optical adjunct called a Ramsden's or positive eyepiece. We wish to induce the more general use of this instrument amongst our photographic brethren, as calculated materially to improve their productions, for we have very rarely found, however well a subject may have been focussed *without* it, that it has been so perfectly done as to be incapable of still further improvement with it. As there is also another highly useful purpose to which this piece of apparatus may be applied, we have considerable hopes in the probable influence of our persuasion.

A Ramsden's eyepiece consists of a tube furnished with two plano-convex lenses placed one at each end, with their convex sides towards one another, at a distance equal to *half the sum of their principal foci.* The foci of the two lenses should bear a proportion to one another of about two to three, that with the longer focus being next the eye, and the shorter, which should also be of the larger diameter, next the ground glass. For photographic purposes the eyepiece should be mounted in a carrying tube with a screw adjustment, much in the style of the old fashioned botanical microscope, and also furnished with a collar so as to clamp the eyepiece in a fixed position when once it has been properly adjusted to the ground glass upon which it is intended to be used. When in use the carrying tube is to be placed in absolute contact with the focussing screen, and its action, in addition to its giving a highly magnified view of the image, is such as to render such parts as are not in correct focus still more indistinct than they appear without its aid—this is owing to the eyepiece restricting the vision to planes but very slightly removed from that of the roughened surface of the focussing screen—and thus operating as a test to distinguish whether the focal adjustment is absolutely upon it, or only very near it; for it must not be forgotten that an image formed by a lens can be seen more or less distinctly *through* the ground glass, particularly if it approximates to the position of the latter, as is evidenced in the interesting experiments of M. Claudet, and which fact led to the invention of his stereomonoscope.

The annexed diagram, drawn as if the whole were transparent, will assist in the explanation of the instrument.



A is a plano-convex lens of about one inch focus, measured from the plane surface, and one inch and a quarter in diameter. B is a similar lens of one-and-a-half inch focus and about five-eighths of an inch diameter; they are mounted in brass and fitted into the two ends of the inner tube C, with their plane surfaces one-and-a-quarter in. $\left(\text{that is } \frac{1+1\frac{1}{2}}{2}\right)$ apart, their convex surfaces being opposed to one another. The inner tube, into which the lenses are inserted, is furnished on its upper *exterior* surface with a coarse screw CC, which works in a corresponding screw cut in the upper *inner* surface of the outer tube D, at *dd*. There is also a screw cut on the upper exterior surface of the outer tube D at *ee*, upon which a collar with milled edges, *f*, works.

In the outer tube D are three longitudinal slits, one of which is seen at *g*, and the screw in the inside of the collar *f* being slightly conical, as the latter is screwed down it draws together the three segments of the outer tube, pinching it so tightly upon the inner one C as to prevent its being afterwards screwed further in or out.

To adjust the eyepiece for the camera, first unscrew the collar *f*, place the lower end of the tube D upon the smooth surface of the ground glass focussing screen, and having previously made a mark with a lead pencil upon the ground surface, hold both together up towards the light, and, with the eye applied to the lens B, turn round the inner tube C to the right or left as may be requisite until the pencil line, highly magnified, is seen with the utmost possible amount of distinctness. When this is satisfactorily accomplished the collar *f* is to be screwed perfectly tight, and the eyepiece is then in proper condition for use, nor will it require again adjusting except it be for use with some other focussing screen, the thickness of which differs materially from that upon which it was first adjusted.

The proper employment of the Ramsden's eyepiece with the camera is as follows, viz.; First arrange your subject, and focus roughly in the ordinary way; then consider what you have delineated upon the screen, and determine in your mind which are those parts that are most essential to be rendered with the greatest amount of definition. Apply the eyepiece flat upon the ground glass to the most important part, and correct your focus while viewing it through the eyepiece (it is rarely indeed that some correction is not found requisite); remove the eyepiece and inspect the whole to ascertain that some other important part is not thrown too much out of focus; if it be, a compromise must be made between the two, giving most distinctness to the most important, and *vice versa*; but if no compromise will admit of both parts being moderately sharp, then a smaller aperture of the camera lens must be employed.

In a case of this kind, where a certain amount of compromise is imperative, it is exceedingly difficult, not to say impossible, without such aid, to apportion the relative proportions of distinctness that should be allowed to the respective parts of a composition: hence the *painful hardness* sometimes complained of, because the wrong parts get more than their share of definition at tho expense of those parts which can not only bear it, but require it. By the judicious use of an eyepiece in focussing, this error is, or can be, entirely avoided.

That which is true of all the parts will also hold good as a whole; consequently, in delineating a subject nearly all in one plane, it is much easier to get a sharp picture over the whole field by the use of the eyepiece than without it. In portraiture, for instance, the eyes of the sitter are the special points of greatest importance, and here it renders good service.

We stated, in an earlier part of this article, that the Ramsden's eyepiece could be applied to another useful photographic purpose, which we now propose to indicate.

As it is by no means cumbersome, a landscape photographer will do well always to carry it in his pocket, as it often happens that during a ramble he sees a subject that he determines upon taking; but on again seeking the spot, laden with all his apparatus, he sometimes finds, to his intense disgust, that there is no single point from which he can get the whole within the limits of his picture. The application of the eyepiece to the determination of a question of this kind is one of the simplest. If it be held out *at arm's length* towards any object, so as to look through it, but with the lens A next the observer, that is, in a contrary position to that in which it is ordinarily employed, a miniature picture of the whole subject will be plainly depicted, but embracing a *larger angle of picture* than the camera will include.

In order to prepare it, so as to be constantly ready for this use, it is only necessary to set up your camera in front of any subject, and having adjusted it, note what portions of it are included within the limits of the focussing glass; then, by fitting a piece of brown or other dark coloured paper upon the plane surface of the lower lens A, a rectangular opening may be cut from the centre which will admit of an *equal angle of picture being viewed* thereby. The eyepiece will then always be ready for employment in this way, without its being in the least injured for its ordinary purpose; and if you have several cameras, any of which include different limits, a change in the piece of paper renders it applicable to either.

We have so frequently found the advantage of its use in this way, that we should procure one for this purpose alone did we not already possess the article; but we regard it in this light as a luxury,—in the other (for focussing), as an indispensable requisite.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION.

At the ordinary monthly meeting, held at Myddleton Hall, Islington, on the 29th September, George Shadbolt, Esq., Vice-president, in the chair, the minutes of the previous meeting having been confirmed, the Chairman stated that the presentation photograph (a view of Rochester Bridge, &c., by Mr. R. Howlett) was ready for distribution to members, and those present received their copies accordingly.

The following gentlemen were duly elected members:—Messrs. H. Simpson, — Harding, F. Smith, T. Fenn, — Brodrick, A. Wetherby, D. J. Stuart.

The Vice-President then requested Mr. Hislop to take the chair while he read a paper "*On Focussing in the Camera*" (for which see page 249), and exhibited and explained the uses of a Ramsden's eyepiece for focussing, &c., upon which a discussion ensued.

The Vice-President then read a paper which he had received for publication in the *Liverpool and Manchester Photographic Journal*, from Mr. Thomas Gulliver, of Swansea, "*On Working Wet Collodion in the Field*," and stated that it being necessarily excluded for want of space from the forthcoming No. (1st instant) he was not willing to allow it to lie altogether fallow for a fortnight as it contained what he regarded as a valuable suggestion on out-of-door manipulation. (For paper see page 256.)

A discussion, in which Messrs. Hislop, Barber, Shadbolt, and others took part then ensued, relative to the advantages of commencing a development of collodion negatives with solutions of the salts of iron, and strengthening the deposit by a subsequent application of gallic or pyrogallic acid. It was the general opinion of those who had experience in this practice, that by adopting it a shorter exposure in the camera suffices than when pyrogallic acid alone is used to develope with.

A vote of thanks was accorded to the Vice-President.

Portable stereoscopic cameras and stands of amateur construction were exhibited by Messrs. Shave and Bingham, also glass positive pictures by Mr. Lander.

Notice being given that promises of papers for future meetings would be received, Mr. Barber volunteered to read one "*On the Causes of Failure in the Oxymel Process*," at the next meeting, on the 27th October, and the meeting adjourned.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE September meeting of this Society, as we briefly stated in our last number, was regarded with more than usual interest, owing to the presence of Herr Paul Pretsch, the patentee of the photo-galvanographic process. He had kindly come down from London, not only to explain this interesting off-shoot of the engraver's art, and exhibit some fine unpublished specimens, but also to explain the new lenses invented by Professor Petzval, of Vienna.

Herr **PRETSCH** said, that this gentleman's portrait-lens, consisting of two achromatic combinations, is well known to every photographer. Professor Petzval, however, had continued his researches in optics, and the result had been the invention of the lens then upon the table, which possesses some peculiar qualities. It reproduces pictures more perfectly, because it has less curvature of field. It has three especial capabilities: ensuring, as much as possible, perfect correctness of perspective and delineation; an equal distribution of light over the entire surface; and an equal sharpness all over the picture, that is, in the centre as well as at the corners and edges. With time enough for exposure, a fair light, and distance enough to choose the point of view, a very nice picture can be taken with an achromatic lens of ordinary construction, by employing a small diaphragm; but these three main points are not always to be had. The light is not always favourable; the choice of a proper distance of view is not always possible; nor is the time of exposure an easy matter to determine; therefore Professor Petzval uses more artificial means. The new lens consists of three achromatic lenses. Two sizes lay on the table, one capable of taking pictures thirteen and a-half by eleven inches, the other eight and a-half by six and a-half; and Herr Pretsch directed attention to some very fine pictures with which the walls of the room were hung, some of them taken by Mr. Rejlander, as shewing the peculiar merits of the new lens. In these the correctness of perspective, and the uniform clearness of delineation over the whole surface, were very noticeable. He then gave a description of the photo-galvanographic process, which has appeared in this *Journal* upon previous occasions.

Mr. **REJLANDER**, in moving a vote of thanks to Herr Pretsch for his kindness in attending, said he was not quite familiar yet with M. Petzval's landscape lens; sometimes it was like using the portrait lens. The other day he took a picture with it in six seconds, and it was overdone. He had never yet what might be called a fair light, but after trying it several times with near views and various stops, he hoped to give such an account of it as might be relied upon. As to Herr Pretsch himself, he (Mr. Rejlander) thought the photo-galvanographic process had not received the support in his country which was its due. He was grieved to say that it had been almost laid aside, though from what they saw, there could be no doubt that it would have been carried farther and farther, if it had met with a moderate measure of patronage. In the room, for instance, a copy of his *Old Gipsy Woman* was hung, and reproduced in such a style as he should be glad to see for all his works. He hoped they should see Herr Pretsch amongst them again under more favourable circumstances.

Mr. **BRANTHWAITE** seconded the motion, which was carried unanimously.

Mr. **OSBORN**, Treasurer of the Society, then read the paper from Mr. Sutton, of Jersey, which we published in the last number of this *Journal*, and for which a vote of thanks was passed to him, as well as to Mr. Osborn for his trouble in obtaining the paper.

Mr. **OSBORN**, in acknowledging the compliment, called the attention of the members and friends of the Society to the fact, that it was intended to hold a photographic exhibition at Aston Hall next year. The interim managers had promised them the use of a room, and he hoped members and friends would do what they could to get a goodly number of photographs together, either for exhibition or sale.

A paper was read in the course of the evening, by Mr. **PERCIVAL JENNS**, tracing the analogies of structure existing between the eye and the camera used for photographic purposes, and was devoted chiefly to an exposition of the undulatory theory of light.

Mr. Davis, of Tamworth, was elected a member of the Society.

The next meeting, which will be the annual one, is fixed for the 26th of October. It is probable that after the usual business has been transacted, discussion on Mr. Sutton's paper will be invited.

PHOTOGRAPHY
AT THE
MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

A PAPER was read by **W. SYKES WARD**, Esq., on "*The Dry Collodion Processes.*" He observed that some apology was due from him for occupying the time of the section with this subject, as he had already introduced it at Cheltenham, and again last year at Dublin; but in the dry process he thought there was more scope for investigation than in any other department of photography and he mentioned the continued researches and experiments of both French and English phtographers on the subject, a result of which being that they had a vast number of different processes published—so many, indeed, that they were likely to create some confusion. There was, however, an advantage in their variety, as most of them were capable of modification and interchangeability, so that an operator might adapt each to his own particular requirements. It had been objected to the use of many of the methods proposed that they require so much manipulation, but, in his opinion, the great thing to be aimed at was a superior result, and certainly he was no true artist who objected to one or two more operatious, provided a successful result were attained. Indeed, many of the operations were more for the purpose of correcting errors or removing stains than necessary parts of the process. He then detailed a variety of the dry processes, referring in terms of high eulogy to that proposed by Mr. Maxwell Lyte, in which a film of meta-gelatine is used. The process, he thought, had not obtained the notice of which it was well worthy. It had been urged that the dry process had mostly failed in the production of views of the foliage of trees and of water in motion, but in this respect Mr. Lyte's process was singularly successful. He might state, in conclusion, that none of the dry collodion processes that had come under his notice were so sensitive as they were represented to be, although that was a matter of minor importance as it regarded small pictures, especially such as were used for the stereoscope, yet it was of much consequence in larger pictures.

Mr. R. J. Fowler next read a paper "*On a Process for the Estimation of Actinism.*" He said that in drawing the attention of the section to the estimation of the actinic force of the solar radiations, his object was rather to add what he presumed were new facts to the science of actinometry than to present a perfect and complete process in every respect. In the ninth volume of *Gmelin's Handbook of Chemistry* he found it stated that "oxalate of ammonia mixed with aqueous proto-chloride of mercury is decomposed under the influence of light, yielding sal-ammoniac, calomel, and carbonic acid;" it also stated that "the mixture of the two solutions remains clear in the dark, in daylight it becomes turbid in six minutes, and in the course of an hour deposits calomel, which in sunshine quickly falls down in soft flakes, surrounded with bubbles of carbonic acid. The filtrate no longer contains mercury, but chloride of ammonia and undecomposed oxalate of ammonia." On seeing this he was at once struck with the idea that here might be the elements of a process for actinometry, and whether this was the fact he left them to judge from the experiments he had tried on the subject. He found it true that the solutions named might be kept unchanged for an indefinte period in the dark; that the calomel began to precipitate in from fifteen to twenty seconds in full sunshine; and also that the precipitate ceased immediately the vessel containing the solution was removed from solar influence, thus shewing that the action is not continued in darkness even when the change has been partially effected, and that the action of the actinism is not in this case catalytic. He had also exposed three tubes containing the mixed solutions to pretty uniform light, No. 1 for ten minutes; No. 2 twenty minutes; No. 3 forty minutes; the results being that No. 2 contained twice the bulk of precipitate of No. 1, and No. 3 twice the bulk of No. 2. When the solutions were exposed several hours the vessel containing them was found to be completely filled with magma of the precipitated calomel. From these experiments it appears conclusive that the mixture of solutions of oxalate of ammonia and proto-chloride of mercury is very sensitive to light, and as this action of light is not catalytic, the precipitate obtained may be considered as produced by solar influence alone; and lastly, that a definite amount of precipitate is produced by a definite amount of actinic force; thus proving that there are elements of certainty and uniformity in the behaviour of the mixed solutions when exposed to solar influence, from which a certain method for estimating the actinic force may be formed. If extreme delicacy were required in the estimations, the precipitate might be collected, dried, and weighed; but, where this was unnecessary, graduated tubes might be used for exposing the mixed solutions, and from which, after standing a certain time in the dark, the amount could at once be read off. Mr. Fowler stated that in his experiments he had used a nearly saturated solution of the two salts, but this was by no means necessary, as he found that, if a drop of the solution of proto-chloride of mercury, containing only 1-1500th part of a grain of that salt were added to 300 grains of the solution of oxalate of ammonia, and exposed to the light, the calomel would still be precipitated. The reaction in fact being so delicate that it might be used as a confirmatory test for the presence of the proto-chloride of mercury. He stated in conclusion that it would be interesting to know how the absorbed actinism of M. Nièpce de St. Victor would affect the solutions. He had made some experiments in that direction, but not with sufficient success to warrant any positive assertions.

At the close of Mr. Fowler's paper, no immediate remarks being made on the subject, Mr. Mercer, F.R.S., exhibited several specimens of chromatic photographs, some being on calico or a similar fabric, produced by previously soaking the material employed in a solution of peroxalate of iron, the effects produced were both singular and novel, and the method promises to lead to photographic colour printing; it is at least a step in that direction. As the photographs were being handed round for examination, Mr. Mercer gave a few brief explanations of the circumstances that led to their productions.

Mr. W. Lyndon Smith also read an interesting paper "*On the Choice of subject in Photography, and the adaptation of different processes.*" He said it was the grand reproach thrown against photography that it was a merely mechanical operation, and that its votaries need not necessarily possess taste, imagination, or even a knowledge of the rudimentary elements of pictorial art. A writer in the last number of the *Art Journal* states that his object is to shew that no mechanical process can long supersede the living agency of man's mind, and that photography is and never can be anything more than a servant of servants; and the writer proceeds, in a long and tedious exposition, to prove by arguments neither novel nor ingenious, the utter inadequacy of photography to maintain the position in which its admirers would place it. Now these remarks, he was aware, would make not the slightest impression on genuine disciples of the art; but he introduced them because adverse criticisms were in some measure merited by the ill choice of subjects the majority of photographers, both professional and amateur, had made, the former generally styling themselves photographic "artists," with what impropriety their specimens too often shewed. However, within the last two years there had been very great improvement. The *art*, in the first days of photography, was totally lost sight of in the excitement produced by the marvels of the *science*, and it is but lately the camera has been transferred from the hands of the chemist, who has taught us indispensable knowledge, and to whom we could not be sufficiently grateful, to the hands of the artist, who now demonstrates daily the beauty and truth of its representations. The most common subjects represented have been architectural views, and the French photographers have arrived at a great amount of perfection in this department, yet in even the best of their pictures there is often a want of taste in the point of view selected. They are too often taken from an elevation, to prevent the inclination upwards of the camera (which causes the upright lines to converge), and, consequently, there is a loss of magnitude, and the beauties of perspective are diminished. Again, they are generally "full front" instead of "in perspective," which latter position is always more picturesque. But it is in landscape that the glorious fidelity of the camera, when its direction is controlled by the true artist, is most evident. None but he can experience the delight of catching the most transient effects of ever-changing nature. It is in this direction that the glorious future of artistic photography lies, and the true lover of nature will delight more in a specimen of this class than in scores of hasty sketches, even by clever men, or in the gaudy and meretricious colouring of the pre-Raphaelite, vainly attempting to delineate by the hand that which the sun himself paints for us in the photograph. Photographers are generally too frightened of getting the sun in the camera, as they say, and take their views with its back to their best friend, and thus they lose all the cross shadows which give a stereoscopic effect to a picture, and, in fact, get hardly any shadow at all, as with the sun in the position mentioned, the shadows are all behind the different objects composing the view. He had invariably found that the most pleasing pictures were taken with the sun shining right on the front of the camera, and nearly into the lens, but in this case the precaution must be taken to shield the lens from the direct rays of the sun by the hand or otherwise. Water in motion is rarely reproduced with success, except in instantaneous views; and for the present that must be left to the painter, who, by the aid of white paint and hard brushes, can give us any amount of cataract. The painter himself even condescends to use the camera for the depiction of foliage and herbage, and photographic studies of foreground are most generally admired for the extreme delicacy with which the veinings and markings of the tenderest herb or flower are delineated; still it must not be forgotten that foregrounds are most lovely when adjunct to an extended view. The study of composition is as necessary to the photographer as to the painter, and every student of the art may derive much benefit from the study of J. D. Harding's "*Principles and Practice of Art*," which, containing much from which many will dissent, conveys to an inquirer much useful and practical information. With reference to the latter portion of his subject, Mr. Smith mentioned that calotype paper was, in his opinion, suitable for giving bold effects, though open to objection on account of its want of clear definition and its granular surface. The wax paper was more homogeneous, but both methods are now generally exploded. Albumen on glass gave exquisite definition, and was most successfully used for taking engravings and paintings, on account of the clearness of lines and the absence of dirtiness in the white parts, a fault to which collodion is liable. In his opinion, the albumen on glass process could not be improved upon by any of the modern processes to which Mr. Ward had alluded. Undoubtedly, the collodion process was the best, notwithstanding the inconvenience attending its use. The collodio-albumen process, so much advocated at present, appeared to him extremely unsatisfactory, though the confidence of its supporters was unbounded; and as to the dry collodion process, by it no satisfactory effects have yet been produced, though every effort had been made by its advocates. He concluded by hoping that the remarks he had made might excite discussion, that so any fallacy might be confuted, and any truth confirmed.

The Rev. W. V. Harcourt, who had taken the chair in the absence of the President, deprecated any lengthened discussion on account of the time.

Mr. W. S. Ward said the thanks of the section were due to Mr. Mercer for his experiments; and, in reference to the last paper, remarked that he could not agree altogether with its author, as to artistic difficulties. A tyro in the art would do anything, but a photographic artist could only become one by repeated trials. He did not consider it to be right to change photography from a science to an art; and genuine artistic effects were produced through photography being under the dominion of the chemist and physicist. To secure the full effect of foliage and of water, much exposure was absolutely necessary. The great practical difficulty was to hit the right point between under and over exposure, as the effect of light was more powerful at first than afterwards. He might say that the less a photographer was satisfied with what he had accomplished, the more likely was he to succeed better in future.

Mr. Smith said that he believed the simpler the manipulation and materials the better. He thought the dry process a complete failure. Photographers might be divided into two sections: the scientific, who sought out and experimented upon complicated processes; and the artistic, whose great object was to produce the best effects.

Dr. ODLING observed that some instruments had been used by Bunsen and others to determine the actinic force, but they were entirely out of the reach of the ordinary practitioner. He trusted Mr. Fowler would proceed with his researches; and inquired if the decomposition of the solution referred to had proceeded *pari passu* with the length of exposure?

Mr. FOWLER replied that, probably, the first five seconds elapsed without any action whatever.

PHOTOGRAPHIC EXHIBITION AT LEEDS.

By a Correspondent.

THE Exhibition of the Leeds Photographic Society, in connection with the recent meeting of the British Association, presented many features deserving of special notice and distinguishing it from those of a more extensive and permanent character.

The scheme which was published in a recent number of the *Liverpool and Manchester Photographic Journal* was novel, and it appears desirable that the points, both of success and shortcomings, should be noticed for the benefit of those who may be engaged in promoting similar ones, and especially those which we are glad to find are almost constantly formed for the instruction and amusement of the members of the British Association at their annual gatherings.

The idea of making a separate division for the illustration of local scenery was a happy one, and moderately well carried out; but we are informed that its probable success was ascertained before it was determined upon, the pictures being mostly the production of the promoters, otherwise this part of the scheme would have failed, for we were surprised to see so large a collection of photographs, chiefly furnished by only four amateur contributors, viz., Messrs. Isaiah Dixon, Lyndon Smith, T. W. Stansfeld, and W. S. Ward; Mr. Ramsden also contributing some of his published views of Bolton Abbey. We do not recollect the names of any other parties as contributing more than single pictures to this department.

One of the smaller rooms of the Leeds Town Hall (the larger rooms being all occupied for the sectional meetings, &c., of the Association) was filled with these local views, most of which possessed considerable merit as representing the principal monastic remains of the county of York. The Abbeys of Kirkstall, Fountains, Rievaulx, Bolton, Whitby, and St. Mary (York), were each represented, some of them very completely, yet the too frequent occurence of duplicate views was avoided: some there were, however; but these were interesting inasmuch as they were produced by various processes, and shewed much difference in the manner of treatment.

In this division of the exhibition the pictures by the albumenized collodion process, by Mr. Dixon and Mr. Ward, nearly equalled in number, and much exceeded in size, those by the wet collodion processes. Mr. Ward, who exhibited about twenty pictures of the average size of fifteen by twelve inches, appeared to have been desirous rather to shew the general capabilities of his process for work, than of selecting the best specimens of his productions. Some of his pictures were very inferior to others, and many seemed capable of being better printed. Mr. Dixon's pictures, by the same process, shewed better selection of subjects and more careful printing, but were less ambitious in the size. The pictures by Mr. L. Smith, which had mostly been exhibited before, were admirable specimens both of artistic treatment and of careful printing; and as regards that peculiar delicacy of half-tone, which is so much affected by the exclusive admirers of wet collodion, were certainly superior to the productions by the dry processes; but when viewed from a distance adapted to produce the best effect upon oil-paintings, the dry process pictures looked bold and vigorous, whilst those by the wet process appeared flat and indistinct. Again, the productions of Mr. L. Smith and Mr. Stansfeld, though both from negatives on wet collodion, differed remarkably in style—those of the former being developed by pyrogallic acid, while those of the latter mostly with salts of iron. Mr. Stansfeld's pictures appeared to be conscientiously printed, so as accurately to represent the value of the process. Mr. L. Smith's pictures were printed in a style peculiarly his own. We believe he considers that, as the object of the photographer is to produce as artistic and beautiful a print as possible, he may fairly avail himself of what he considers the best method of doing so. A careful examination of these pictures led us to the conclusion that in nearly every instance the exposure had been so prolonged as to solarize or produce a weakness in the sky, which had, therefore, been blocked out, and that, after the printing an artificial sky had been produced by a graduated method of shading, which was introduced so skilfully, as greatly to add to the artistic effect, finer gradation of the half-tone being also obtained than could be if the printing were required to be from an untouched sky. This was all fair in the exhibition in question; for the framers of the rules of the Leeds exhibition did not require that the negatives should be untouched, seeing that this rule is subject to much misunderstanding and evasion. It would be well if what constitutes a touching up of a negative or a print were more strictly defined: either may be altered by shading or painted by light in a manner as objectionable as by the pencil.

The second division of the exhibition was mostly in another room, and had the benefit of a more extended number of contributors, both local and residing at a distance. Amongst the former were Mr. Best, who exhibited several copies of engravings, some foreign and some his own productions. Both were equally good, and amongst the best we have seen in this class; indeed, in most the printing was so careful and the toning so appropriate that it was only on a close inspection that we were convinced that we were looking at a photograph, and not at the engraving itself.

Mr. George Buckton contributed some excellent photographs of machinery, shewing that in this department photography may be most successfully applied: we, however, doubt whether many manufacturers are prepared to take up photography as carefully, and with as much love of art, as Mr. G. Buckton has done, or whether they would afford sufficient remuneration and appliances to employ a professional photographer.

Mr. Samuel Smith, the President of the Leeds Photographic Society, contributed a large picture of a view in Rome, by a Roman artist, which formed a very striking feature in the exhibition. This picture was in three parts, each of very large size, most carefully printed, and the joinings being scarcely perceptible. The subject and the execution were both extremely fine. Mr. Smith also exhibited some smaller views from the same locality.

There was a variety of copies of works of art and of mediæval ornaments exhibited by Messrs. Huggon and Briggs in this section. A few specimens of portraits by the same, as also some by Navey and others, were included; but portraits were not allowed to form a prominent feature: for in a small exhibition it was considered desirable to prevent their becoming too predominant; therefore, the number which any one artist might exhibit was limited by the regulations. There were, however, some most interesting illustrations of some of the aborigines of Australia.

ON A CONVENIENT METHOD FOR WORKING WITH WET COLLODION IN THE OPEN AIR.

By Thomas Gulliver.

Perceiving that there are still enquiries for a ready method of employing wet collodion for landscapes purposes, without being overwhelmed with incumbrances, I beg to offer the following statement of my method of operating with the dark tent, described in a letter of mine, which appeared in No. 4, February 15th, of the *Liverpool and Manchester Photographic Journal*, which I have had in use now seven months, and can speak highly in its favour.

A short time back I received an order for three views of a bridge to be used in a court of justice as evidence. I started with the tent about three in the afternoon, having to walk a mile to the place of action, and I returned by half-past four with four negatives, three of which were good.

I will now describe the *modus operandi*. The chemicals taken consisted of thirty ounces nitrate of silver solution, two ounces collodion, four ounces developer, and four ounces of syrup. No water for washing, nor any hyposulphite of soda. And here let me advise all photographic tent travellers never to encumber themselves with these nuisances. On arriving at the spot the camera was screwed on to the top of the tent, which serves as the camera stand. The plate having been coated and put in while the focus was adjusted, was exposed for twelve seconds, and taken inside the tent, and a developer poured on, consisting of protosulphate of iron and acetic acid. When the picture was fully brought out, about three-quarters of an ounce of syrup was poured on and off three or four times, then the plate, $8\frac{1}{2} \times 6\frac{1}{2}$, stowed away in a plate box, and thus a negative secured in the short space of three and a-half minutes.

On my arrival at home, the plates were first washed in water, then a solution of pyrogallic acid and silver poured on and off till sufficient density was obtained, and finally cleared with hyposulphite of soda, washed and varnished. There is no fear of the film coming off, as the syrup fixes it firmly as a sheet anchor. The syrup is composed of coarse brown sugar, honey, an acetic acid, and water. I do not trouble myself to carry any developing table or tray, as I consider them quite useless, and the little mess that is made is left on the ground. I enclose a print from one of the negatives taken on the occasion described above.

[The manipulation of the proof is decidedly good, the faults that are present appear to belong to the lens not working too well towards the edges.—Ed.]

REVIEWS.

The Photographic Teacher; or what to do in Photography, and how to do it.

By G. Wharton Simpson.

(London: Henry Squire, 52, King William-street, London Bridge.)

The gratification experienced by the recipient of a benefit in liquidation of a promise previously held out, is more often guaged by the extent of fulfilment than by the absolute amount of the favor conferred. Many very excellent treatises on the practice of photography entail an amount of disappointment upon those who read them, not so much from any actual deficiency in the abstract, as from failing to carry out the somewhat unreasonable pledges voluntarily entered into at the outset. The little work before us is free from the error alluded to; its promises are reasonable and it redeems them; the directions are simple and not confused by redundancy. There are naturally some few mistakes that have escaped notice, but these may be corrected in a second edition, which we have little doubt will be called for. Amongst them we may notice when treating of the LENS, a little confusion of ideas between *spherical aberration* and *sphericity of field*, and again in the section devoted to the arrangement of POSITION OF THE SITTER, the old error of elevating the camera and tilting it downwards, one that invariably imparts an *undignified* aspect to the resulting likeness, and which cannot be too soon entirely discarded. On the other hand there are some very judicious remarks in this same section.

A new process is described for producing glass positives called Alabastrine Photographs, by the aid of what is termed (we think erroneously), a "Re-developing Solution," and though the information is given where this material may be obtained at a reasonable price, like the celebrated play where the part of Hamlet was omitted, the *composition* of this solution is not communicated.

A chapter is given upon transferring the collodion film to linen, paper, &c., by means of a process patented by Mr. Rollason, but we strongly advise those of our friends who wish to practice this branch of the art to have nothing to do with any patent connected therewith, but follow out the simple instructions given upon this subject by Sir W. J. Newton, who was certainly the originator of the idea, and whose method of manipulation was exhibited at the Photographic Society of London, and the details published in the Journal of that body in 1853.

There is a chapter devoted to a description of Dr. Hill Norris's dry collodion process, which is very lucid and ample, and also one upon *colouring posi-*

tives, which we venture to predict will be the means of causing a large demand for the pamphlet, for though this is a subject upon which we have had no experience, common sense at once commands the ready assent to what is laid down by one evidently practically acquainted with the best methods of effecting the desired object. The following short extract from this chapter will be of interest to many of our professional readers:—

"The picture ready to receive the colour, a small portion is taken up on the point of a camel's-hair pencil, and applied to the picture with a light circular motion. It is as well, perhaps, to begin with the forehead, using No. 1 complexion colour; in some cases it will be necessary to add a little yellow. Commence on the highest lights and soften gently into the shadows, which should receive the slightest possible amount of colour, otherwise the roundness of the picture will be destroyed and the likeness injured. Very little colour should be laid on at one time; depth is to be obtained by repeated applications, the surface of the picture being breathed on, and then suffered to dry between each application of the colour, in order to secure better adherence. The outlines of each feature must be carefully traced, and caution used to avoid covering the shadows of the mouth, nostrils, &c., and to avoid touching the eyes with the flesh colour. Having obtained an even, delicate coating of the flesh tints, on the face, neck, hands, &c., the colour of the cheek is to be heightened, by the addition of a coating of complexion colour, No. 2 or 3, or carmine, as the subject may require. The lower lip is then to be coloured with the colour provided for the purpose, modified to suit the necessities of the case. The upper lip being in shadow, must be carefully touched, and in some cases not at all, as there is danger of making it appear coarse and swollen. Dark eyes, either hazel or grey, are best untouched; but to the iris of light grey or dark or light blue eyes, a little of the proper tint on the point of a fine sable may be applied, taking care to avoid touching the pupil. The hair must now be touched in the light and half-tones with the local colours, avoiding the deepest shadows."

Then follow instructions relative to colouring draperies, backgrounds, &c., with full particulars of all that requires attention in this department, for which we must refer to the work itself. This chapter alone is to many worth more than the cost of the book, which is, as a whole, one that we can honestly recommend.

The Ambrotype Manual, selected from the Works of Charles A. Seely, A.M., Editor of the American Journal of Photography.
First English Edition.
(Liverpool: John Atkinson, 37, Manchester-street.)

After having read through this little pamphlet, we could with difficulty divest ourself of the notion that we had been perusing a somewhat lengthy telegram, so peculiar is the style, so different to that to which we are accustomed.

We cannot abstain from protesting against the introduction of a number of barbarous compound words, such as Ambrotype, Melainotype, Niellograph, Chemitype, Sphereotype, and a host of others; we have sins enough of this kind in England to answer for already, but we are certainly free from such unnecessary hair splitting variations of tweedledum and tweedledee as those above indicated, for they actually *all* apply to simple collodion positives, the so called differences consisting only in the supporting material, as glass, paper, leather, iron, &c.

There is, to our fancy, rather too constant a recommendation of *somebody's patent everything* in almost every part of the work, while no fixed theoretical principles appear to be adhered to in the chemical sections, for instance, we find the following statement at p. 17:—

"Great advantages will often be found in mixing the various excitants, provided always the *relative quantities* of iodide and bromide are maintained."

Then follow five different recipes for sensitizing ten ounces of collodion, in each of which a total of *fifty grains* of iodide and twenty of bromide is directed, without any regard whatever to the chemical equivalents of the various bases employed, so that the *relative* quantities of bromides and iodides are by no means maintained, while in one of the five recipes we find no less than *four* different bases proposed, viz., ammonium, potassium, cadmium, and zinc, without any reason assigned.

There is amongst some of our photographers in this country an impression existing that their transatlantic *confrères* are doing great things in the art, but upon what foundation we know not; to them this book may be of use as shewing at least *how* they do them.

We will conclude with a short extract of the part we like best, viz., the entire preface.

"The writer of this little book has done his work without ambition or concern."

"The art of ambrotyping seems to him a simple thing, and he aimed only to tell the story plainly."

"Moreover, there is enough demand to *sell the book*, and satisfy the publishers—*the main point*."

[! ! ! Ed.]

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In page thirty-nine of the present volume, after giving a description of Mr. Sutton's developing process, you state that in the next *Journal* you will perhaps give further information respecting the same. I have been looking for this information for some time, not having succeeded as I should have wished in the trial of the process as given. Indeed I find that better pictures are to be got by printing sufficiently without using the developer, but even these are not satisfactory; I should be glad, therefore, to hear what you have to say on the subject, and also that you would kindly give the long promised article on *enlarged negatives*.

I beg to bear my testimony to the very excellent process of Mr. Fothergill: before going into the country seven weeks ago, I prepared a large number of plates, of those I exposed (about twenty-five) I had only three failures, for which I have myself to blame for trying them on an impracticable day. I brought a few home with me, one of which I exposed this morning, and obtained a most satisfactory negative.—I am, yours, &c. R. P. D.

29th September, 1858.

[The promise alluded to respecting the developing process was made by our predecessor in the editorial office. We are not fond of developed paper positives in general, but if we were to adopt any developing process, we should prefer to try that of albumen on paper prepared with gutta percha, as suggested by M. Gaumé, a description of which will be found in our Leader of the 15th ultimo. The subject of enlarged negatives has not been forgotten: it will come in due course. A preliminary article *on focussing* will be found in the present number.

PRESERVATION OF PAPER EXCITING BATH.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As the paper extracted from *Cosmos*, in the number of the *Journal* for Sept. 1st, has not called forth any remarks from your correspondents, I venture to suggest that, as the cost of the albumenized paper would be increased by the process recommended for preventing the discolouration of the nitrate of silver solution, it is merely necessary to salt the albumen with chloride of *ammonium*, and the silver will remain colourless, and will not require filtering, except occasionally to remove a dark deposit which settles to the bottom of the bottle containing it. I make this suggestion with confidence, having used large quantities of such paper, and always with the same result. A single sheet of paper of any other kind (albumenized) will sometimes colour the silver a deep red, but the solution I have now in use every day (from sixty to eighty ounces) is quite colourless, and has not been filtered for the last fortnight.

If your experiments confirm the above, I shall be glad to know the chemical change which produces the result named.—I am, yours, &c.,

Manchester, Sept. 27th, 1858. A. BROTHERS.

FOTHERGILL PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—In reply to "W.'s" enquiries respecting curling off of film and dark border at the edges of the plates, the most probable cause of the first is unsuitable collodion; but, if satisfied that the collodion is right, it may be looked for among the following:—Plates not roughed or well cleaned at the edges, also those placed in a box or dark slide before being perfectly dry; collodion not allowed properly to set before the plate is placed in the bath; or *prepared albumen not carried well up to the edges of the plate.* Remedies for the first four are obvious, and for the latter all that is requisite is to cause the albumen to follow the finger all round the edges of the plate, taking care that the finger is *quite clean*, and rests rather against the under edge of the plate, so as not to disturb the collodion film. The long brown or dark stains mentioned (if the dark slide does not admit light) are caused by either not carrying the water well up to the edges at the *commencement* of washing the sensitized plate, so that the middle is washed more, or rather the bath on it more diluted than at the edges—*vide* my communication in the *Journal* of 15th September—or the plates have been put in the box or dark slide before the "film" has become dry.

Before concluding, I would draw attention to the remark by Mr. Heywood, in his ably written paper "*On the Fothergill Process*," reported in your last as read at a meeting of the Chorlton Photographic Society, to the effect that there are two states of dryness—one that he has termed *surface*, and the other *film* dryness—and that plates used before the latter has taken place are liable to uneven sensitiveness, recommending artificial heat to complete the drying as obviating this, and also increasing the sensitiveness.

This I consider particularly worthy of attention, and am inclined to think that to plates having been placed in dark slides, and *more particularly in deal boxes before the film has been thoroughly dry*, may be attributed the difference experienced by some in the keeping properties, and in many instances the brown stains at the edges, and other similar ones mentioned by W., several circumstances have tended to convince me that this is the case; among many others, on one occasion I put some prepared plates in a dark box *quickly* after preparing them, and all proved more or less damaged, while others prepared at the same time and under the same circumstances were *quite perfect.*

The advantage of using artificial heat has also been observed by others besides Mr. Heywood. Mr. Prichard mentioned in a communication in the last *London Photographic Journal*, recommending the plate to be placed on a hot water plate for the purpose, and Mr. Ebbage, another of our amateurs, has for some time practised it; his plan is to place just underneath the shelf of the cupboard in which he finally puts them to dry, a suitable bottle of nearly boiling water. With plates thus dried and a four-and-a-half inch Ross' stereoscopic landscape lens (single), very small stop, he gives, on general subjects, an exposure of from forty to sixty seconds; forty-five and fifty being the usual, and the results are the *most beautiful I have ever seen.*

Both these plans of drying avoid the necessity of removing prepared plates from the operating room, and also the risk of too high a temperature. Three gentlemen, so well versed in this process, having, without any knowledge of each others proceedings, arrived at the same conclusion, strongly recommends the plan, to say the least, to our notice.

It may further commend this much admired process to your readers by informing them of its superiority for copying purposes. I have this day seen the copy of a print, by another of our persevering amateurs, Mr. Bright, in which every line and shadow, even the most delicate, of the original is delineated, without the harshness of contrast so frequent and objectionable. It is decidedly superior to any he has taken by the wet process, though very successful, and requires an experienced eye to detect that it is merely a photographic copy.—I am, yours, &c.

Leamington, Oct. 6th, 1858. ALFRED KEENE.

HINTS ON THE PRESERVATION OF SENSITIVE PAPERS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—For your very prompt and polite reply to my last queries, I beg you will accept my best acknowledgements. I send you the following suggestions or hints on the preservation of sensitive papers for insertion in the columns of your periodical, if deemed of sufficient value.

Every one who has had much experience in photographic printing, and in manipulating waxed paper, knows the great difficulty of preserving the papers unimpaired for any length of time. A few hours in summer suffice to destroy the beautiful silvery white of the very best albumenized paper, and to reduce the sensitiveness of waxed paper to a minimum, besides seriously influencing the subsequent development of the picture. By adopting the following method these evils may be in a great measure remedied or removed. Take a well made pressure frame of the ordinary description with cross bars and screws, and over the window of the frame fit accurately (so that it may exclude all light) a lid of wood. A *whole* back I prefer to a hinged one. The interior of the frame to be lined with black cloth. Procure six or eight sheets of the best patent plate glass, the size of the pressure frame, and your "Preserving Box" is complete. Before proceeding to charge the box with sensitive papers, wash thoroughly the glass of the pressure frame and the sheets of patent plate, and give them a good polishing. As soon as your sensitive paper is *dry* (if dried by artificial heat so much the better in the case of albumenized paper) place each piece between the glass plates, commencing with the glass of the pressure frame and so on; slip in the back of the frame and screw down firmly. If the weather be very sultry, keeping the "Preserving Box" submerged in cold water will be found very serviceable. This may be readily accomplished by procuring a long Macintosh bag, like a pillow case, into which the "Preserving Box" will slip freely, place the box in the bag, tie the neck tightly, and attaching an adequate weight of lead, &c., to the bottom of the bag, sink it in a water butt, keeping the neck of the bag at the rim of the butt. Waxed paper may be thus preserved for days.—I am, yours, &c.

Eccles, October 7th, 1858. GEORGE HAYDON.

[For reply to your inquiries see answers to correspondents.—Ed.]

INJURY TO COLOURED GLASS PLATES—REMEDY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—On reading my communication, headed "Injury to Glass Plates," in the 1st September number of your truly practical and useful periodical, I regretted to find that I had omitted the statement of one circumstance, which may appear to many to have been of consequence in unriddling the above-named mishap. It is as follows:—Taking from a drawer a parcel of partially decomposed (I suppose peroxidized) proto-sulphate of iron, I inadvertently threw it down on a ledge above the window bench on which the plates in question rested. The rain, saturating the mass, trickled down of a brick-red colour on them as they stood on end, partially staining all their surfaces to a greater or less extent. The sequence of their existing may be learned from my former letter.

I now beg to thank you most heartily for your proposed means of cure and restoration to their pristine useful state, *which has proved completely successful*, thus saving me some dozen of variously-sized coloured glasses, which I could but ill-afford to lose. Doubting the possibility of such simple means, as you had kindly recommended, effecting so great and desirable results, I left the plates exposed to storm and sunshine for several weeks. Rubbing them, at length, with strong nitric acid, and finishing their cleaning in the usual way, I, a perfect sceptic to the plan proposed, on one spare day tried plate after plate in the camera, and, to my great astonishment and joy, after developement, found them *spotless and perfect in every respect*.

The French sheet-glass plates, stained in patches of an opal-coloured hue, as they came from the glass-house, have thus far resisted all remedial measures for their restoration to a state of usefulness. The stains appear to have been burnt into the substance of the material.

Thanking also, very sincerely, my esteemed friend Mr. Forrest, for his obliging suggestions in the last number of the *Liverpool and Manchester Photographic Journal*, I purpose forthwith putting his plan of polishing with rouge and felt to the test, under which treatment I trust the snail-creeps may give way, more especially as the extreme surface is likely to be removed by Mr. F.'s method of polishing. I hold it to be exceedingly liberal on the part of the above-named gentleman, seeing that he is a large manufacturer of glass, in giving photographers in general his consequently doubly valuable and truly practical advice, more especially from its bearing on a manufacture with which he is so pecuniarily connected. His very useful remarks forcibly shew the necessity of stowing away our glass plates in some place free from damp and moisture, thus, it may be, avoiding inexplicable and misconstrued causes of failure.—I am, yours, &c., HENRY H. HELE.

Teign Cottage, Teignmouth, Devonshire, Oct. 2, 1858.

[We certainly think that the presence of the solution of iron is important in explaining the cause of the snail-creep markings in the coloured plates; but as our correspondent, before adopting our suggestion, had tried the detergent properties of undiluted nitric acid, without curing the evil, we were convinced that it was owing to unequal *light absorption* of the plate itself; and concluded, that if we could not *undo* what had been previously done, we might possibly *do* what had been previously left *undone*.—Ed.]

ANSWERS TO CORRESPONDENTS.

C. Farley asks why we so frequently postpone our Reviews to the next issue? We should have thought that the reason would, upon the least reflection, have been evident. In order to review honestly, a practice we endeavour to adhere to, it is necessary to *read and study* a work carefully: and this takes time. We do not profess to be one of those who "can see with half an eye:" we find quite use enough for the whole of *both* "of" these organs.

J. Macfarlane.—Hypo-sulphite of soda should be used for fixing plates by Fothergill's process, and, indeed, any that contain *organic matter*, as cyanide of potassium materially weakens the deposit produced when the former is present.

J. T. T.—At the North London Photographic Association, Myddleton Hall, Islington. J. S. Moon, Hon. Sec.

Hypo.—The iodizing materials of nearly all the various kinds of collodion are well known and require no microscopic examination to determine the point.

George Haydon.—Half-way down the tube. The Huygenian eye-piece.

F. S. W.—Unquestionably a good portrait combination, with an arrangement for diaphragms *between* the lenses.

Thos. Crawley.—If you require an enlargement only to about three or four diameters, a good stereoscopic single lens *reversed*, with a camera rather more than four times the length of solar focus, will answer your purpose. We have just been applying a similar arrangement to the delineation of the wings of neuropterous insects. If you require greater enlargement, you had better have a good two-inch *microscopic* object glass, but it must be *specially corrected for chemical rays*.

Bromine.—No use at all; detrimental rather than otherwise.

J. A. Forrest.—In our next publication; also the conclusion of Prof. Bunsen's communication on the "Extinction of Chemical Rays."

Received—"Photography with Clean Fingers." "A Guide to Painting Photographic Portraits." Reviews in our next. T. F. H. W. R.

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N.B.—Messrs. A. MARION & CO. have just received a fresh supply of "PAPIER DE SAXE."
September 20th, 1858.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 21, Vol. II.—NOVEMBER 1, 1858.

The season has now fully set in when the meetings of the various Photographic Societies throughout the kingdom commence; already have the proceedings of some of the provincial, and one of the London suburban associations of photographers, at their first sittings for the forthcoming session, appeared in these pages, and in a few days after these lines meet the public eye, the (London) Photographic Society, the nucleus whence all the others arose, will have entered into the arena.

It is an interesting speculation, as to what will be "the topic," *par excellence*, of the season: if we look back we shall find that there is one which has predominated in each of those already passed. During the last the optics of photography were the all-engrossing theme; previously to that the various preservative processes had a strong turn; at a still earlier date, albumen upon glass was the leading feature; while mechanical arrangements for apparatus of every description connected with photographic pursuits commanded general attention during the early days of the Photographic Society's existence. What then will this year bring forth?—"that is the question."

It would be curious to compare notes as to what each of us has been about connected with our art, during the cessation of our usual mutual intercourse, and this will no doubt be done, more or less, in good time; in the mean time we will hazard a conjecture that *new modes of printing positives* will be the subject that will perhaps attract the largest share of our attention for the next few months. It is one that deserves our most careful consideration; it is one that demands earnest and instant thought; it is one that photographers of every shade of variety are deeply, not to say vitally, interested in. We know for a fact that many laborious experiments have been performed in several directions with a view to the solution to this problem, and, although we have seen some highly *promising* results, we frankly confess that they, one and, all fall short of the best silver prints that have been and are now constantly produced.

We perceive, by the way, that the "hat is again going round," on account of a certain carbon printing process, and we have a word or two of advice to offer, in all good faith, to the promoters of the subscription list.

It is alleged that "it is now in a very perfect state;" that "these prints are as good in definition and half-tone as ordinary prints, and require no re-touching;" that carbon printing has been brought "to the same perfection as any other branch of photography," Furthermore, it is stated that this process "is so simple that any one may succeed with it on the first attempt, and the materials are so inexpensive, that for a few shillings some hundreds of large prints may be produced." *Now, if the foregoing statements can be substantiated*, the simplest mode of proceeding would be to prepare a number of positives by the process, procure their exhibition (with the undertaking to publish the "*modus operandi*" as soon as subscriptions—not mere promises—shall have reached the stipulated one hundred pounds), at the meetings of some of the Photographic Societies, and leading dealers in photographic apparatus in London, Liverpool, Manchester, Leeds, Edinburgh, Glasgow, &c., and we will answer for it, *not many days* will elapse before the list will be full and the money subscribed. The proofs must not be mere copies of engravings or other works of art, but genuine proofs from glass negatives of either landscapes or portraits taken from nature.

Only substantiate the statements made, by the very easy proceeding indicated, and we will ourself undertake to procure the exhibition of them at four if not five societies, and at least half a dozen dealers in London; and furthermore, contribute our own subscription of a guinea, using also our best endeavours to induce others to do likewise; and, unless we are very much mistaken, we think we have some influence with our friends. We stipulate, of course, that in the mean time no similar satisfactory process shall have been already published. We candidly admit that we do not anticipate that this challenge will be responded to, for the very simple reason that if the announcements put forth were free from considerable exaggeration, multitudes of photographs by this process would already be in the market for sale and find eager purchasers, and that but little difficulty would be experienced of raising ten times the amount at present asked for.

While upon the subject of printing, we may mention a curious fact brought under our notice a few days back by Dr. Diamond. A paper proof, having thereon a group of eight individuals printed from as many different negatives, upon the principle brought forward some time back by Mr. O. G. Rejlander, and described in this *Journal*, occupied some two or three days in receiving the whole of the impressions—the whole being subsequently toned and fixed. The peculiarity to which we desire attention, and which was very noticeable in the specimen shewn to us, was, that the impressions first printed upon the sheet, were indisputably inferior in vigour and brilliancy to those last executed upon the same sheet; and that it is stated by the operator that this phenomenon occurs uniformly as a rule. We do not know who was the producer of the photograph which we saw, and cannot, thereforo, judge of his capabilities of observation; but, although our first idea was, that the action of the light might possibly be continued to some extent after the paper had been withdrawn from its influence, and a detrimental activity maintained even in darkness, upon further reflection, we came to the conclusion that the explanation was not so feasible a one as, that the negatives employed may have had a varying *contrast of tone*, and were probably used in each case in the same order.

By varying contrast of tone, we mean, that the high lights and deep shadows in some of the negatives, differed more in the power of arresting the actinic rays than in others of them; or to put it in another way, the lights were probably more intense and the shadows more transparent in some of the negatives than in others. If this were the case, it would produce precisely the effect complained of, as the greater the contrast of light and shade, the smaller should be the amount of *free* nitrate of silver on the sensitive paper to produce an adequate effect in the printing frame, and *vice versa*. It will be a point of some interest to determine which is the proper solution, and we shall be glad if these observations meet the eye of the gentleman whose picture we inspected, in order that he may be induced to give his own account of the particulars of the phenomena involved in the question.

We are glad to find that the particulars of the new photographic process invented by the Hon. H. Fox Talbot, are now before the photographic world: we find from the specification of his patent (which will be found in another column), that the mixture of bichromate of potash and gelatine, first introduced by him, and subsequently adopted by very many of those engaged in the attempt to accomplish photographic engraving, is the sensitive material employed in the new process; but the great novelty, on which the success principally depends, is the use of an etching material (perchloride of iron) which is not only under control as to its action on the plate, but the action itself is rapid and palpable to the eye while proceeding, together with the power of performing its work *without previous removal of the unaltered gelatine and bichromate of potash.*

We rejoice greatly that this discovery, which promises to be the developement of our art at present most wanted, should have been accomplished by a gentleman to whom photographers already owe so deep a debt of gratitude.

It is so frequently that we have enquiries for information relative to the testing of a portrait combination, that we have considered it advisable to publish the following instructions for a ready mode of doing so:—First, measure exactly and carefully the distance between the ground side of the focussing screen and the front of the camera, having first removed the lens for the purpose; then place a glass plate in the dark slide, substitute it for the focussing screen, lift the shutter as if taking a picture, and again measure the distance to the front of the camera, which should coincide perfectly with that previously taken—if it do not, the camera is not fit for the trial.

Supposing, however, that there is no error here, next put the lens in its place and test for coincidence of chemical and visual foci as follows: take any paper with a number of *fine* lines drawn upon it, for instance, that upon which patterns are printed for ladies' Berlin wool work, or else some small but clear printed matter, and paste either upon stout cards, as also a large distinctive letter or number upon each one—about ten or a dozen will be enough. Place a slip of deal at an angle of 45° and with a thin saw make a series of cuts perpendicular to the horizon, one behind another, at about an inch distance apart, a card with the printed matter or lines being slipped into each, will then all be visible at once from a single point, just in the same way as would be the case with the faces of a number of people standing one behind another upon a flight of stairs. Now carefully focus for the fine lines or small letters on one of the cards in the *centre* of the group, taking special note at the same time of its distinctive letter or number, and having done so, expose a sensitive plate and develope it. If the card upon which the focus was taken be most distinct and sharp the *actinic correction* is perfect; if, however, the best definition be upon one nearer to the lens than that focussed, it is under-corrected, if further from it, over-corrected. Next turn it upon any convenient objects and put in a plate of the size it is supposed to cover and take a picture; if it be deficient in this respect, the angles will be darker and less distinct than the centre. Flatness of field and correction for the oblique rays and for spherical aberration, may be tested by taking a picture of a *large* printed bill placed upon any convenient flat surface, so as to fill the entire area of the plate, when the degree of definition towards the angles will be a fair measure of the two first named corrections.

For spherical aberration proceed thus—cut a disk of thick brown paper of the same diameter as the front lens of the combination, and from the centre of this cut out a smaller disk, seven-tenths of the entire diameter, you will thus have a disk and a ring whose areas differ but a trifle from one another. Now first insert the ring of brown paper, which will act as a diaphragm, and having carefully focussed for your printed bill, take an impression, which should be clear and sharp; then remove the ring of paper, and with a little gum, paste, or other adhesive material, attach the disk of paper to the centre of the lens, but be careful *not to alter the focus*, and take another picture of your printed bill. If the spherical aberration be at all well corrected, the second picture should be nearly as sharp as the first; but if the correction be insufficient, the latter picture will be more or less indistinct.

It is with regret that we heard the other day of the death of a gentleman long connected with the practice of photography since the introduction of the very popular agent, collodion—we mean Mr. Fallon Horne, of the firm of Horne and Thornthwaite, in Newgate-street, whose ill state of health has prevented him from attending to business for some very considerable time back. As connected with the publication of this *Journal* in London, his name, at least, will be known to most of our readers, while to those who have been in more immediate contact with him, his enthusiasm in the art will be long remembered.

After our "leader" in the last number of this *Journal*, a short extract from a letter from Mr. James Wood, of Edinburgh, was inserted, announcing the supposed discovery of a method of producing stereographs from plane surfaces. The subject appearing to be one of great interest, and the letter reaching our publisher just on the eve of going to press, was inserted without comment, and necessarily without having been first submitted to our inspection.

A notice of this imaginary "new invention" subsequently appeared in *The Times* of the 19th ult., since copied into the *Journal of the Photographic Society*, but without any attempt at explanation.

By the kindness of Mr. Wood we have been favoured with an opportunity of examining the productions spoken of, and find that they bear out exactly our conjectures as to the method of producing a certain amount of stereoscopic effect; and we notice, by the way, that the gentleman who accomplished the feat, Mr. John Sang, lays no absurd claim to any marvellous "invention," as it is designated by *The Times*, but simply calls it *an attempt* to render Mr. Cruikshank's well-known series of *etchings* of *The Bottle* stereographic; and to a certain extent they are so, that is to say, the figures not only appear to be rightly placed in front of the back-ground, but correctly also in front of one another; but here we must stop—the figures themselves are each as *flat as pasteboard can make them;* though, from the fact of their being only etchings, this, to a casual observer, is not so noticeable at the first glance.

The method of operation appears to be as follows:—

The figures or objects nearest to the spectator, together with that portion of foreground which supports them, are first neatly and carefully *cut out* from the original print intended to be operated upon. Next, those in the second plane also, with their portion of foreground, are similarly treated, and so on for every plane in succession, the back-ground being left in one piece, excepting where an open cupboard or door reveals a further distance behind, in which case the hinder distance is also cut out.

The whole of the pieces are then pasted on card-board, if not sufficiently stiff to retain their position without bending, and the openings in the back-ground being filled up with *white paper*, such few lines in the original as come in immediate contact with the inserted paper, are with a pen continued a little way further (over the paper). The various parts are then arranged in their respective planes, one behind another, *precisely like the characters and scenery in a child's toy theatre*, the whole being surrounded by a frame of white paper in front, which frame bears the printed labels attached to the pictures.

It will be evident, from a consideration of the above, that a certain point of view may be selected, so that the various objects in front *exactly eclipse* the spaces whence they were cut. This is done, and a photograph taken of the subject. The camera is now moved a slight distance laterally (in this case perhaps an inch will be quite enough), and a second picture is taken. The near objects now do not quite coincide with the spaces whence taken; but inasmuch as *being nearer to the lens*, they subtend a slightly increased angle of vision; they obscure rather more space on the back ground than is equivalent to their own surface, and consequently the interruption of the back-ground is not observable, and where, from their position this compensation is not available, the lines continued with the pen on the paper, inserted to fill up, prevents, what might otherwise prove a defect, being observable.

Mr. Sang has carried this operation out very well, having in several instances *bent forward* some of the limbs extended towards the spectator, so as to produce a very good effect. Where the figures, however, are very much multiplied, as in the scene where the wife lies murdered upon the floor, the principal figures only are in their proper plane, many of those in the crowd being "lumped" together, although not intended to be quite in the same plane.

If it were *possible* to apply this operation to a painting, which we doubt, it would at any rate involve the destruction of the work, which, though of little consequence as regards a single copy of an etching, would be a somewhat costly proceeding in the case of a valuable painting, even if we were to ignore altogether the barbarism of such a piece of folly.

CHORLTON PHOTOGRAPHIC ASSOCIATION.

THE monthly meeting of the above Society was held at the Town Hall, Chorlton-upon-Medlock, on the 13th ult., Mr. HOOPER in the chair.

A discussion on the developement of Fothergill's plates was carried on by several members. A negative was exhibited over-developed, and a print from it, which showed that if developement be carried on as far as is usual for wet collodion negatives, the high lights become so much covered by deposit that they are quite impervious to moderate light, and print in white patches; many of the best half tones are also destroyed by the same result. It was thought this over-developing was the general cause of the patchy appearance complained of by many persons using dry processes, and by many persons, not operators, when viewing the productions from dry plates.

Some members spoke of the great increase of exposure required now from the change in the light at this period of the year.

A MEMBER working Fothergill's process stated that he ensured certain and even washing by using a tray made of gutta percha, the bottom of which was the exact size of the plate; the plate was placed face upwards in this tray after removal from the nitrate bath, and six drachms of filtered rain water poured quietly into the tray, which was raised on its edge, so that the water could be put in without any going *on* the plate; as soon as the water is in the tray, place it level and wash well by moving about sharply. Four very small points are placed in the bottom of this tray, which allow the back to be also washed, and requires much less water than the well bath, and does not (materially) diminish the sensitiveness compared to the four drachm washing on the plates, which is not at all times successful. The tray may be used with advantage by those who have found it troublesome to work the four drachm washing.

Another MEMBER stated that he had adopted Mr. Ackland's well bath with success on plates eleven inches by nine.

A vote of thanks was passed to the chairman, and the meeting closed.

BLACKHEATH PHOTOGRAPHIC SOCIETY.

THE first meeting of the present session was held at the Golf Club House, Blackheath; the President, J. GLAISHER, Esq., F.R.S., in the chair.

The minutes of the last meeting were read and confirmed.

Mr. TERREL, Secretary to a Committee appointed to promote the publication of certain views in Blackheath and its vicinity, presented his report, which was received and adopted.

Mr. MELHUISH exhibited a large number of stereoscopic pictures, which he had recently taken in the Isle of Wight, by the use of Hill Norris's dry plates; and he stated that in use he had met with very few failures.

The PRESIDENT then proceeded to read a paper, by Herr Paul Pretsch, "*On Two Main Points in Photography*," of which we subjoin the following abstract:—

Having observed that there is hardly any optical instrument in existence in greater demand and use than the camera lens, but that this large demand had not given rise, as might have been anticipated, to any adequate improvement in its construction, he expressed an opinion that the fact is probably owing to the requirements of a good lens not being sufficiently understood, and propounded the following questions:—

1st.—What is a camera lens?

2nd.—For what purpose is it used?

3rd.—What are its capabilities for attaining that purpose?

4th.—In what degree and by what means can they be united in such one instrument?

He then proceeds:—

"A camera obscura is an apparatus for producing, at a definite distance, a picture of a far or near object.

The desiderata concerning the qualities of the results are numerous: the picture ought to be sharp, intense, faithful, flat; the lens ought to reproduce far and near objects, if possible, in the same time; it ought to possess a large field of view; the picture ought to be small or large, as it is wished for; and the instrument ought to be cheap and handy too.

Many of these demands can be satisfied in a very simple way, by shutting out light from a room, making it perfectly dark, excepting only the admission of light through a very small hole in the window-shutter, and placing a screen opposite the hole. There is absolute faithfulness, reproduction of far and near objects at the same time, large field of view (near 180 degrees), flatness or curvature according to demand, cheapness, and ease; but there is the want of sharpness and strength in light. And this deficiency is quite sufficient to make this contrivance perfectly useless for any practical purpose."

He then pointed out that by diminishing the area of the small hole up to a certain point, increased sharpness of definition might be obtained, but that beyond a certain limit a diminution of distinctness would occur, owing to the introduction of a new disturbing element, viz., the aberration of *diffraction* or bending of the rays, and says—

The *image* of a luminous point is *never* a point, the hole or opening being as small as possible, but it is a *spectrum of bending*, consisting of a round spot, surrounded by dark and bright concentric circles.

If we diminish the hole in the above-mentioned example to one-sixtieth of an inch, we might obtain, under favourable circumstances, the image of a bright round spot of about one-twenty-fourth of an inch diameter, which, viewed at a distance of twelve feet, will appear as a luminous point. As a matter of course, such an image will not possess any sharpness or intensity of light. But the picture of an ordinary portrait lens, only tolerably well executed, with three-inch aperture and eleven-inch focus, will allow the examination with a magnifying power of at least ten times; it surpasses, therefore, in this respect, the natural camera obscura about 180 times.

At the same time we perceive that too much diminution of the aperture is not only of no use, but injurious to the picture. For instance, if we stop down the above-mentioned portrait-lens with three inches aperture to half an inch, we obtain from a luminous point only the image of a round spot, but not the picture of a luminous point, and introduce a kind of aberration injurious to the picture. There are in fine drawings and writings sometimes lines of $\frac{1}{300}$th of an inch in breadth; and by copying these lines by a lens stopped down in the above-mentioned mode, this image will be covered partly by the circles of aberration of the adjoining points or lines, and will appear smaller and finer; and this effect will be increased by the other difficulty, arising from the curvature of the image, till these lines appear at last like blighted shadows, or not at all perceivable. Such a picture can be viewed by the naked eye, but will certainly not allow of examination by a magnifying power.

Returning to the natural camera, he considers the effect of the introduction of a simple lens into the hole, and shews that although we thereby obtain increased intensity of light, we introduce other inconveniences, such as a definite focus or place where the picture must be taken, instead of its being as before depicted at any point we may choose, also curvature instead of flatness of field, together with spherical and chromatic aberrations, the latter giving rise to difference between the visual and chemical foci. Thus, he says, "it is a proof of the well known principle—nothing for nothing."

The reduction of spherical and chromatic errors to a minimum by the construction of an achromatic lens is then considered, and the original employment of a telescopic object-glass by Daguerre noticed, in reference to which he says:—In fact the practical optician, in constructing an object-glass for a telescope, has to execute only three conditions—viz., first, a certain focus; second, the attainment of achromatism; third, the reduction of spherical aberration to its minimum. The first condition does not want any particular care, because it does not matter whether the focus is a little longer or shorter. The achromatism depends especially upon the foci of the constituent lenses, and the correction of spherical aberration on the curves of the contact surfaces. This permits that we can deal with the chromatism without meddling with the spherical aberration, and *vice versâ*. We can cure any of these evils separately. All these circumstances facilitate the execution of a telescope by a practical optician; but it is different with the lens or objective for a camera obscura;—such a lens ought to produce what is called in mathematics "*a picture of the fifth order*." There is not one term, but there are five terms of the spherical aberration to be removed. Therefore three curvatures of lenses are not sufficient, but we want eight different elements—that is to say, eight surfaces of lenses and distances—in order to satisfy these eight conditions. Experiments are here of no use and theory is obliged to supply the true curves.

Science is more intimately connected with life than we generally suppose. We do not like to devote our researches and exertions to anything which is not wanted in life. Science is the fructification of life; therefore almost every scientific discovery is influenced by the wants of time, and bears its stamp on the front. We can, therefore, with confidence state, that it would have been of no use at all to invent a perfect camera obscura lens before Daguerre's discovery: it would have been considered only an optical plaything.

The camera obscura lens at present in general use, bears also the stamp of the moment in which it was originated, and its capabilities correspond to the desiderata of that time.

It is the same as those constructed at the time when we knew only Daguerreotype productions on silvered metal plates. The exposure required was half-an-hour and more; animated objects, like human beings, could therefore only be taken leaning, lying, or sitting with shut eyes. There existed, however, a vehement desire for taking portaits by this new method, and for examining the pictures by magnifying glasses; therefore the want was felt of a new camera lens transmitting a far greater intensity of light, and producing a much increased sharpness of picture.

Professor Petzval succeeded after long exertion in establishing the theory for constructing these optical instruments, and began his calculation on the following principles, viz.:—

Increase of light can be obtained only by two means—1st, by enlarged aperture, and 2nd, by diminished focal length, or, what is about the same thing, by a smaller size of the picture; by using two collecting lenses instead of only one, and bringing them as near as possible to each other.

But we find from theory that we cannot obtain a better picture by any system of lenses, placed one behind another, be they ever so many, one case only excepted, namely, if all the lenses together act like a plane glass, that is to say, if we wish to produce a large picture at a long distance. To meet this condition he was obliged to separate the lenses, and the distance which proved to be necessary, was one-third of the focus of the anterior lens. He was in consequence compelled to make *both* lenses achromatic, otherwise he would not have satisfied the two conditions of perfect achromatism, viz., that all the variously coloured pictures be represented on one and the same plane, and of the same size.

The fulfilment of eight conditions necessitated eight different optical elements, viz., seven surfaces of lenses, and one distance. This arrangement allowed of the two constituent parts of the first achromatic lens being constructed with *one common surface*, and these parts being cemented together. But the two constituent parts of the second or posterior lens, must remain separated for the purpose of obtaining the four remaining surfaces, although this causes some loss in light.

Having achieved these points of departure by calculation, the lens was executed according to the instructions of Professor Petzval by Mr. Voigtlander, and the result proved so far successful that portraits were taken in direct light of the sun in forty seconds.

The lens has been discussed and criticised, properties have been ascribed to it which it did not possess, and properties denied which it did possess. However, a clear explanation of its abilities has never been published. Here can be applied the principle—"Concerning a new invention, there is only one competent judge, and that is the inventor himself"; and we may add "there is only one unprejudiced critic, and that is time."

In fact, this lens had an aperture of one and a-half inch, with a focus of five and a half inches, and allowed, under favourable circumstances, an enlargement of the picture of twenty-five times. This appeared always to me too great a sacrifice made to the fanciful views of the public, and a disagreeable precedent, which, however, possesses two advantages, viz.—1st. We possess something to make a sacrifice of, and even by a less careful execution we are able to produce something useful; and 2nd.—The camera obscura lens becomes advanced to the rank of a valuable optical instrument, even for the sake of its sharpness and clear definition of colours. This sharpness, and the great intensity of light (sixteen times more than Daguerre's first lens) have been the main points sought and gained by theory.

But, as before mentioned, nothing is to be had for nothing, and every acquisition must be paid for by proportionate sacrifices. The application of two separated lenses causes two disadvantages—the reproduction of the picture in a curve, and a limited field of view.

With the lenses executed more recently, but on the same principle, and of double the size, the curvature became shallower—that is, of a radius of fifteen inches. Although there are some means left to bring the picture nearer to a plane surface, nevertheless it was considered sufficient; the more so, as it was destined mainly for taking portraits, and the figure of a person to be taken, being nearer to a curve than to a plane surface, the photographer can obtain, by a judicious arrangement of his original, a pretty good picture.

The inequality of illumination of the picture of this lens, though not so important in portraits, would make it almost unfit for taking views, especially with a full aperture, if we were not enabled by a proportionate diaphragm, to distribute the light more equally, to diminish the unequal distances of the objects in the picture, and to moderate the curvature of the image itself. The best place for a diaphragm in such a combination of lenses, if the apertures are about equal, is in the middle, between the two constituent achromatic lenses. *In this mode we can obtain a picture, which surpasses generally a picture taken by one of the best* SINGLE *achromatic lenses.*

But the increased demands of the public have caused some opticians to go still further. They have the lens, originally calculated for one and a-half inch aperture, constructed in three and four times the original size, with four and five inches aperture. The optical artizan has done this arbitrarily, without the assistance of science, and it has been neglected to consider that in such an instance the radii of curvatures require a certain correction for the purpose of preserving the same superiority of the picture.

Considering all these circumstances, Prof. Petzval found the desires of photographers sufficiently decided for the issue of a new camera lens, not to replace the former one, originally constructed for taking portraits, but to render valuable services in many cases where the other one is insufficient. The conditions imposed by himself are, viz.—

1st. The intensity of light or strength of illumination ought not to be too great, because it would limit the size of the picture, and would increase the influence of objects at unequal distances upon the sharpness of the picture.

2nd. Still more important, the field of view ought to be as large as possible, and equal in distribution of light and sharpness.

3rd. The utmost sharpness ought to be preserved, at least in those lenses whose pictures are subject to examination by magnifying powers—for instance, the reduced copies of maps, &c.

4th. The objects to be delineated are very seldom on a plane surface, but generally on a curved one, which turns its concavity towards the apparatus; therefore we do not want a lens which makes a plane copy of a flat object, because then it would make a *curved* picture of a *curved* object, but we want a lens producing very shallow curvature of the picture—a lens which will reproduce a flat picture from a curved original, or from objects suitably placed.

5th. These conditions ought to be accomplished at the smallest expenditure of glass, therefore, by moderate aperture of the lens, for the purpose of becoming enabled (if requisite) to construct a similar lens upon a larger scale, for the production of pictures of any size, only limited by that of the camera, and of the plates to be handled by the operator.

These problems are solved by an essential alteration in the construction of the lens. The two achromatic constituent lenses still remain for the sake of perfect achromatism, but they are nearer to each other. This arrangement is necessary for the purpose of obviating the inequality of illumination, and for the production of a picture as brilliant in the corners and edges as in the centre. Besides this, it was considered advisable to sacrifice a small part of the aperture for a purpose, and in a mode which has been before fully explained.

The following is a description of the lens:—It consists, as before mentioned, of two achromatic combinations. The front one, whose constituent parts are cemented together, is nearly plano-convex, the convex side turned to the object. The second achromatic lens is placed at a distance from the former one, of about one-sixteenth of the focal length of the front one. Of the posterior combination, its first constituent part is bi-concave, the shallower curvature turned towards the object, the deeper one towards the picture; the second constituent part being concavo-convex, the concavity towards the object, the convexity to the picture.

The advantages which this lens possesses, are founded on the principles of sound theory. They are:—

1st. *A perfectly correct perspective;* straight lines remaining so, and not becoming crooked. It has been stated in one of the papers devoted to photography, that the perpendicular lines become "knock-kneed," but this observation has been experienced not with a *Petzval* lens, but on an imitated one which had considerable uncorrected spherical aberration.

2nd. *Considerable sharpness of the picture.*

As an illustration of it, Prof. Petzval has constructed a telescope, whose object glass consists of this new combination of lenses. He has two of these telescopes, one of three, the other with five-inch diameter, to which is added a terrestrial eyepiece. The former one allows a magnifying power of forty times, the other one of eighty times; therefore about as much as we demand from the best telescopes for given proportions of aperture.

But to speak with numerical certainty, the picture of his combination, being carefully rectified, is so sharp, that it can be examined by a magnifier of two-thirds-inch focus; or it allows of an enlargement of twelve diameters. If this should be considered a surplus, we ought to consider (says Prof. Petzval)—

a) The full extent of his sharpness is only quite available in the centre of the field view, and decreases a little towards the edges of the picture.

b) It was my aim to make this lens also available for copying maps to the fifth part of their scale, and even in such a manner that by copying, nothing be lost of the details of the original, in so far that we are able to observe in the copy distinctly all the contents of the original by means of a lens of five times magnifying power, or almost two-inch focus.

c) In using an instrument for photography, there is generally something lost; we should therefore possess some surplus for the purpose of being able to afford some sacrifice.

3rd. A further quality of the new combination of lenses is the *equal intensity of* light from the centre to the utmost corners of a surface of 16×14 inch, or of a circle of twenty-inch diameter; it offers, therefore, an equally illuminated field of view of forty-two degrees. If we compare the same in this respect with the combination for portraits, we shall find a superiority of ten to one, because the picture of the portrait lens has only a round spot in the centre, of about a little more than two inches diameter, where the light is quite full and equal; from there to six inches the strength of the light decreases to half of its maximum value, and passes from there very quickly to 0.

The curvature of the picture of this lens is a shallow one; it has a radius of eighty inches. To go still further would not have been advisable. This curvature remains constantly the same, whatever the distance of the object from the lens may be; therefore also in the case, if the object to be taken is situated at a great distance from the lens.

The chromatic properties of a lens vary according to the use for which it is intended. Therefore a lens which might give a brilliant picture in a telescope, will most probably reproduce by photography a picture less sharp, because the visual focus is here predominating. The extreme in the contrary directions would also furnish a difference between the visual and chemical focus. But we can, by regarding the whole of the spectrum, and not only the two ends of it, combine pretty nearly the most effective pencils of rays of the one description with the others. Therefore such a lens will be, in fact, neither the best lens for visual nor for photographic purposes; but this will not be detrimental, if the lens possesses a surplus of sharpness. Prof. Petzval prefers the last sort of achromatism, and states that the difference of the two foci in his lens of three-inch aperture and twenty-six-inch focus, might be not quite one-twenty-fourth of an inch—that is to say, on the one end of this very short space are united the pencils of rays belonging to the centre of the spectrum, and on the other end, the extreme red and violet pencils of rays; between the two is the chemical, as well as the visual, focus. The separation of the two can only be one-ninety-sixth of an inch, it is, therefore, only perceptible by very delicate experiments, perhaps by the use of this instrument for enlarging photographic pictures to a considerable size. However, all this is stated only for the human eye in its normal state. There may be some who are not equally sensitive to the variously coloured rays.

The troubles in photography, which are indispensably connected with the production of large pictures, are numerous. We will not speak here of the washing dishes, baths, vessels, and other utensils; but it must be observed that a lens with a long focus is sensible of unequal distances in the proportion of the square of the foci—namely, a lens with twenty-six-inch focus, in comparison with such an one of eleven inches, supposing the quantity of light to be the same, will show this difference, in case of an irregular position, five times more. It was, therefore, considered necessary to alter the construction of the camera; and here is a field for anybody who likes to make improvements, but not in the lens: there is *no improvement* to be made, not even by the theory of profound science, because it is *the best one* which can be achieved by the expenditure of the optical means mentioned.

This alteration or addition consists chiefly in a "swinging back" for the purpose of inclining the ground glass, and also the surface on which the picture is to be taken. At a short focus, and in a small field of view, such a contrivance is not so necessary, but it is indispensable to this new lens. It is very frequently the case that the objects to be taken are situated at various distances from the camera. There is a row of houses, the nearest point of which is about some twenty yards, the other end a great distance off. According to the laws of nature—and there is no protest against them— the distances of union of the pencil of rays emanating from these objects, differ more or less considerably in proportion of the length of the focus. In the given instance this difference will be one inch; and if the nearest objects are at a distance of about fifteen yards, the difference will be about two inches. This perceptibility to the difference of distances compels us to use all the means we can to remedy it.

If the position of the camera is well chosen, the objects in near distances appear either on one side (for instance, on the right), and the camera will require, therefore, a greater length on the left-hand side; or the near objects are in the foreground, and require, therefore, a longer distance from the lens on the upper part of the camera. The "swinging back" ought to have, consequently, a double movement—one on its vertical, and one on its horizontal axis. An inclination, for the purpose of shortening the upper part of the camera, will be very seldom required; however, it ought to be in existence, for instance, in the case if we are to take the interior of a building, and we are obliged to take also the copula or the ceiling of the hall.

But in spite of all these contrivances, of making effective all the good properties of the lens, an inventive photographer may still find out means enough, if so inclined, to take an indistinct picture by a sharp apparatus, to make strength of light useless, and to do away with the correctness of perspective, &c.

The best mode of taking groups of persons is to place them in the periphery of a circle which is made by the radius of seven feet from any point of the axis of the instrument. The more we deviate from it, the more we shall be troubled by the unsharp parts of the picture, and the more necessary will become an inclination of the surface of the image to the axis of the instrument.

But it is not intended to say that we can take a picture only in this position; the rule ought to be applied, for instance, in this way:—The photographer going to take a view, tries whether he can find out a spot from which the objects to be taken are seen in the above-mentioned position. Has he found such a spot? then he can take a picture on a surface vertical to the axis of the instrument, and can do it without a diaphragm. If no such spot can be found, then he ought, to ascertain whether he can obtain the desired effect by moving the axis of the instrument, in which case he can obtain, by a corresponding movement of the surface of the image, a sharp picture without a diaphragm. The same mode can be applied if we are going to take objects at near distances—objects which we can place, if we choose, at the required distance and in the desired mode from the instrument. But if we are obliged to take objects in *unfavourable* positions—perhaps in quite a contrary position to that required, near and far objects on the same place, or near to each other—in this case we can only obtain a good picture by using a more or less small diaphragm, and allowing a longer time for exposure.

The human eye is also a camera obscura, but a very little one. The limits of its efficiency are from eight inches to an indefinite distance. A lens of eleven-inch focus will reach from twenty steps to the indefinite; a lens of twenty-six-inch focus, from 120 steps to the indefinite: and if we would construct an instrument of still greater dimensions—perhaps of fifty-two-inch focus—we should be enabled to take, without a diaphragm, pictures of objects whose distance from the instrument is from 500 steps to the indefinite.

It has been mentioned already that this lens is especially fit for taking maps in a smaller size than the original. Copies of maps ought to be re-produced with mathematical accuracy, preserving all the details of the large original exactly, and allowing the use of a magnifier. Prof. Petzval explains for this purpose some contrivance how to arrange the original, which ought to be placed in the inner surface of a paraboloid of rotation. The use of diaphragms is here limited to a certain extent, because if stops of too small an aperture are applied, some of the lines become indistinct and washed out. A well executed copy of a map is a test of the superiority of the lens, of the chemicals and of the photographer. But the explanation of this would require almost an extra article. The larger lenses of his new combination are recommended for this purpose.

The accuracy of this lens, required for the last mentioned kind of work, enables us to make use of it also for copying originals in the same size, and for enlarging them. The effect of the instrument is chiefly calculated for great distances, and it is, therefore, not quite in the right place if it is used for copying in the same dimensions as the original. In such a case, as a matter of necessity, double the length of the original focus for direct rays would be required.

If it is used for magnifying purposes, picture and object ought to exchange places. The object or the original ought to be placed on the side of the smaller lens, and the picture is produced on the side of the larger one. Very fine and sharp negatives on glass can be copied in enlarged dimensions with great advantage. But in this case the paper for the positive copy of the picture ought to possess the form of the paraboloid of rotation mentioned before. Experience must teach us in this instance; but we may state that if we require thirty seconds for taking a copy five times smaller than the original, we may take a copy five times larger than the original perhaps in about ten minutes, having only twenty-five times inferior strength of light. However, this is only if we take the enlarged copy in the same light as the diminished copy, for instance, opposite to a white wall or a clean sky-light. But if we can apply a heliostat with an illuminating lens, we can increase the strength of light to an important degree, and shorten, therefore, the time of exposure.

This is an abridgement of the observations of Prof. Petzval, made on the issue of his new lens. They are done for the purpose of facilitating to the photographer the study of his instrument. But there is still wanted a great deal of warm feeling for progress, and a great deal of practical experience to bring all the capabilities of the lens to bear. I thought it advisable to omit all mathematical formulæ, because it seems there are so many people who are frightened by them. I can only add my sincere confession that I would have preferred to see Prof. Petzval's own report published in English, arranged by a man who is more conversant with the language, and even with strict science itself. Should anybody of more learning and abilities be inclined to enter into the matter with profundity, I should be most happy to furnish him with every assistance in my power.

SPECIFICATION OF MR. FOX TALBOT'S NEW PROCESS OF PHOTOGLYPHIC ENGRAVING.

"The process described in this specification, to which I have given the name of 'Photoglyphic Engraving,' is performed as follows:—

"In this invention, I employ plates of steel, copper, or zinc, such as are commonly used by engravers. Before using a plate its surface should be well cleaned; it should then be rubbed with a linen cloth dipped in a mixture of caustic soda and whiting, in order to remove any remaining trace of greasiness. The plate is then to be rubbed dry with another linen cloth. This process is then to be repeated; after which, the plate is in general sufficiently clean.

"In order to engrave a plate, I first cover it with a substance which is sensitive to light. This is prepared as follows:—About a quarter of an ounce of gelatine is dissolved in eight or ten ounces of water, by the aid of heat. To this solution is added about one ounce, by measure, of a saturated solution of bichromate of potash in water, and the mixture is strained through a linen cloth. The best sort of gelatine for the purpose is that used by cooks and confectioners, and commonly sold under the name of gelatine. In default of this, isinglass may be used, but it does not answer so well. Some specimens of isinglass have an acidity which slightly corrodes and injures the metal plates. If this accident occurs, ammonia should be added to the mixture, which will be found to correct it. This mixture of gelatine and bichromate of potash keeps good for several months, owing to the antiseptic and preserving power of the bichromate. It remains liquid and ready for use at any time during the summer months; but in cold weather it becomes a jelly, and has to be warmed before using it: it should be kept in a cupboard or dark place. The proportions given above are convenient, but they may be considerably varied without injuring the result. The engraving process should be carried on in a partially darkened room, and is performed as follows:—A little of this prepared gelatine is poured on the plate to be engraved, which is then held vertical, and the superfluous liquid allowed to drain off at one of the corners of the plate. It is held in a horizontal position over a spirit lamp, which soon dries the gelatine, which is left as a thin film, of a pale yellow colour, covering the metallic surface, and generally bordered with several narrow bands of prismatic colours. These colours are of use to the operator, by enabling him to judge of the thinness of the film: when it is very thin, the prismatic colours are seen over the whole surface of the plate. Such plates often make excellent engravings; nevertheless, it is perhaps safer to use gelatine films, which are a little thicker. Experience alone can guide the operator to the best result. The object to be engraved is then laid on the metal plate, and screwed down upon it in a photographic copying frame. Such objects may be either material substances, as lace, the leaves of plants, &c., or they may be engravings, or writings, or photographs, &c., &c. The plate bearing the object upon it is then to be placed in the sunshine, for a space of time varying from one to several minutes, according to circumstances; or else, it may be placed in common daylight, but, of course, for a long time. As in other photographic processes, the judgment of the operator is here called into play, and his experience guides him as to the proper time of exposure to the light. When the frame is withdrawn from the light, and the object removed from the plate, a faint image is seen upon it—the yellow colour of the gelatine having turned brown wherever the light has acted. This process, so far as I have yet described it, is, in all essential respects, identical with that which I described in the specification of my former patent for improvements in engraving, bearing date the 29th Oct., 1852.

"The novelty of the present invention consists in the improved method by which the photographic image, obtained in the manner above described, is engraved upon the metal plate. The first of these improvements is as follows:—I formerly supposed that it was necessary to wash the plate, bearing the photographic image, in water, or in a mixture of water and alcohol, which dissolves only those portions of the gelatine on which the light has not acted: and I believe that all other persons who have employed this method of engraving, by means of gelatine and bichromate of potash, have followed the same method, viz., that of washing the photographic image. But however carefully this process is conducted, it is frequently found, when the plate is again dry, that a slight disturbance of the image has occurred, which, of course, is injurious to the beauty of the result; and, I have now acertained, that it is not at all necessary to wash the photographic image; on the contrary, much more beautiful engravings are obtained upon plates which have not been washed, because the more delicate lines and details of the picture have not been at all disturbed. The process which I now employ is as follows:—When the plate bearing the photographic image, is removed from the copying frame, I spread over its surface, carefully and very evenly, a little finely-powdered gum copal (in default of which common resin may be employed). It is much easier to spread this resinous powder evenly upon the surface of the gelatine, than it is to do so upon the naked surface of a metal plate. The chief error the operator has to guard against is that of putting on too much of the powder: the best results are obtained by using a very thin layer of it, provided it is uniformly distributed. If too much of the powder is laid on it impedes the action of the etching liquid. When the plate has been thus very thinly powdered with copal, it is held horizontally over a spirit lamp in order to melt the copal; this requires a considerable heat. It might be supposed that this heating of the plate, after the formation of a delicate photographic image upon it, would disturb and injure that image; but it has no such effect. The melting of the copal in known by the change of colour. The plate should then be withdrawn from the lamp, and suffered to cool. This process may be called the laying an aquatint ground upon the gelatine, and I believe it to be a new process. In the common mode of laying an aquatint ground, the resinous particles are laid upon the naked surface of the metal, before the engraving is commenced. The gelatine being thus covered with a layer of copal, disseminated uniformly and in a minute particles, the etching liquid is to be poured on. This is prepared as follows:—Muriatic acid, otherwise called hydrocloric acid, is saturated with peroxide of iron, as much as it will dissolve with the aid of heat. After straining the solution, to remove impurities, it is evaporated till it is considerably reduced in volume, and is then poured off into bottles of a convenient capacity; as it cools it solidifies into a brown semi-crystalline mass. The bottles are then well-corked up, and kept for use. I shall call this preparation of iron by the name of perchloride of iron in the present specification, as I believe it to be identical with the substance described by chemical authors under that name—for example, see *Turner's Chemistry*, fifth edition, page 537; and by others called permuriate of iron—for example, see *Brande's Manual of Chemistry*, second edition, vol. ii. page 117.

"It is a substance very attractive of moisture. When a little of it is taken from a bottle, in the form of a dry powder, and laid upon a plate, it quickly deliquesces, absorbing the atmospheric moisture. In solution in water, it forms a yellow liquid in small thicknesses, but chestnut-brown in greater thicknesses. In order to render its mode of action in photographic engraving more intelligible, I will first state, that it can be very usefully employed in common etching; that is to say, that if a plate of copper, steel, or zinc is covered with an etching ground, and lines are traced on it with a needle's point, so as to form any artistic subject; then, if the solution of perchloride of iron is poured on, it quickly effects an etching, and does this without disengaging bubbles of gas, or causing any smell; for which reason it is much more convenient to use than aquafortis, and also because it does not injure the operator's hands or his clothes if spilt upon them. It may be employed of various strengths for common etching, but requires peculiar management for photoglyphic engraving; and, as the success of that mode of engraving chiefly turns upon this point, it should be well attended to.

"Water dissolves an extraordinary quantity of perchloride of iron, sometimes evolving much heat during the solution. I find that the following is a convenient way of proceeding:—

"A bottle (No. 1) is filled with a saturated solution of perchloride of iron in water.

"A bottle (No. 2) with a mixture, consisting of five or six parts of the saturated solution and one part of water.

"And a bottle (No. 3) with a weaker liquid, consisting of equal parts of water and the saturated solution. Before attempting an engraving of importance, it is almost essential to make preliminary trials, in order to ascertain that these liquids are of the proper strengths. These trials I shall, therefore, now proceed to point out. I have already explained how the photographic image is made on the surface of the gelatine, and covered with a thin layer of powdered copal or resin, which is then melted by holding the plate over a lamp. When the plate has become perfectly cold, it is ready for the etching process, which is performed as follows:—A small quantity of the solution in bottle No. 2, viz., that consisting of five or six parts of saturated solution to one of water, is poured upon the plate, and spread with a camel-hair brush evenly all over it. It is not necessary to make a wall of wax round the plate, because the quantity of liquid employed is so small that it has no tendency to run off the plate. The liquid penetrates the gelatine whereever the light has not acted on it, but refuses to penetrate those parts upon which the light has sufficiently acted. It is upon this remarkable fact that the art of photoglyphic engraving is mainly founded. In about a minute the etching is seen to begin, which is known by the parts etched turning dark brown or black, and then it spreads over the whole plate—the details of the picture appearing with great rapidity in every quarter of it. It is not desirable that this rapidity should be too great, for, in that case, it is necessary to stop the process before the etching has acquired sufficient depth (which requires an action of some minutes' duration). If, therefore, the etching, on trial, is found to proceed too rapidly, the strength of the liquid in bottle No. 2 must be altered (by adding some of the saturated solution to it), before it is employed for another engraving; but if, on the contrary, the etching fails to occur after the lapse of some minutes, or if it begins, but proceeds too slowly, this is a sign that the liquid in bottle No. 2 is too strong, and too nearly approaching saturation. To correct this, a little water must be added to it before it is employed for another engraving. But, in doing this, the operator must take notice, that a very minute quantity of water added, often makes a great difference, and causes the liquid to etch very rapidly. He will, therefore, be careful, in adding water, not to do so too freely. When the proper strength of the solution in bottle No. 2 has thus been adjusted, which generally requires three or four experimental trials, it can be employed with security. Supposing, then, that it has been ascertained to be of the right strength, the etching is commenced as above mentioned, and proceeds till all the details of the picture have become visible, and present a satisfactory appearance to the eye of the operator, which generally occurs in two or three minutes; the operator stirring the liquid all the time with a camel-hair brush, and thus slightly rubbing the surface of the gelatine, which has a good effect. When it seems likely that the etching will improve no further, it must be stopped. This is done by wiping off the liquid with cotton wool, and then rapidly pouring a stream of cold water over the plate, which carries off all the remainder of it. The plate is then wiped with a clean linen cloth, and then rubbed with soft whiting and water to remove the gelatine. The etching is then found to be completed.

"I will now describe another etching process, very slightly differing from the former, which I often use. When the plate is ready for etching, pour upon it a small quantity of the liquid (No 1—the saturated solution). This should be allowed to rest upon the plate one or two minutes. It has no very apparent effect, but it acts usefully in hardening the gelatine. It is then poured off from the plate, and a sufficient quantity of solution (No. 2) is poured on. This affects the etching in the manner before described: and, if this appears to be quite satisfactory, nothing further is required to be done. But it often happens, that certain faint portions of the engraving—such as distant mountains or buildings in a landscape—refuse to appear; and as the engraving would be imperfect without them, I recommend the operator, in that case, to take some of the weak liquid (No. 3) in a little saucer, and, without pouring off the liquid (No. 2) which is etching the picture, to touch with a camel-hair brush, dipped in liquid (No. 3), those points of the picture where he wishes for an increased effect. This simple process often causes the wished-for details to appear, and that, sometimes, with great rapidity, so that caution is required in the operator, in using this weak solution (No. 3) especially, lest the etching liquid should penetrate to the parts which ought to remain white: but in skillful hands, its employment cannot fail to be advantageous, for it brings out soft and faint shadings which improve the engraving, and which would otherwise probably be lost. Experience is requisite in this, as in most other delicate operations connected with photography; but I have endeavoured clearly to explain the leading principles of this new process of engraving, according to the method I have hitherto found the most successful."

REVIEW.

Photography with Clean Fingers——by?——
(Russell Jeffrey, Pitville, Cheltenham.)

This is a small pamphlet illustrated with several wood-cuts, and chiefly descriptive of the use of certain forceps more or less adjustable by means of a screw, patented by Mr. Bryer, and intended for holding wet excited plates, so as to prevent their coming in contact with the fingers of the operator, and thus avoiding the soiling, or being soiled by them.

We scarcely think that any photographers will care more for their fingers than their pictures; some dabblers in the art may be squeamish upon the point, but should they be inclined to try the forceps, we recommend them to take a few lessons, prior to using them, from some "professor of legerdemain," or they will probably run no inconsiderable risk of smashing every negative, if we may judge from the illustrations explanatory of their application. We should fancy the excitement of a good day's fishing tame, in comparison with that of getting a plate out of the bath, with these tools; but we must admit that we have not had any experience of it. As will be seen, however, by a note in the correspondents' column, our friend, Mr. Keith, differs in opinion with us upon this point.

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

ROUGHING THE EDGES OF GLASS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—Now that the dry processes are so generally used, the following simple and effective mode of grinding the edges of glass, to make it run into the slide from the transfer box, may not be unacceptable to the amateur:—Take a flat bar of iron, and with a cold chisel make a bevilled slit; rub the edges in the cut with a little emery and water, and it will be found to act very quickly.—I am, yours, &c.,

Liverpool, Sept. 21*st*, 1858. J. A. FORREST.

A CORRESPONDENT'S OPINION OF A LARGE ROSS'S LENS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—If you know anyone in the same predicament as I was myself a week ago, *i.e.*, in search of a good large lens, you may safely recommend Ross's five inch combination. I had tried five of various makers, and had almost given up the hope of getting one at all, but in despair wrote to Ross to send me one on approbation; and I do approve of it and no mistake. I took with it yesterday a standing figure, twelve inches high with a three inches aperture, in forty seconds, very dull light, and from the nose to the toes it is quite perfect. I think it a perfect treasure. There are also some nice modern innovations. Instead of the brass frying-pan there is a neat leather covered cap, which fits perfectly, and if it falls down takes no harm. The diaphragms are between the lenses, and slip in quite easily, either before or after focussing; more than all, it has no rack. Racks to large lenses are quite useless; in the first place, you cannot reach them, and from the weight of the lens they soon get out of order. Last, though not least, the price is not out of the way—£42 10s.

34, *Castle-st., Liverpool,* I am, yours, &c.,
October 21*st*, 1858. WM. KEITH.

[We do not intend to recommend any particular maker's lens as *necessarily* good; we have had too much experience in optical instruments not to know that *a name*, however noted, does not always carry the guarantee that is imagined; we at the same time, highly appreciate Mr. Ross's talent as an optician, but we cannot forget that there are other good makers. We have been well acquainted for some time with the *innovations* mentioned, as may have been gathered from previous remarks.—Ed.]

PHOTOGRAPHING WITH CLEAN FINGERS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—A few days since Mr. Bryer, of Cheltenham, called upon me to introduce his patented instruments, intended to facilitate the practice of "photography with clean fingers." At first I was rather awkward with them, and inclined to think that because "fingers were made before," they must be preferred, but since I have got used to them, I must say I like them very much. For the gentle and genteel practitioners of photography I think them a great desideratum, more especially for negative work.

To-day I have received his holder stick, and decidedly think that the best piece of the whole apparatus. In developing with the ordinary pneumatic holder, the developing runs over the hand, or, if the plate is large, over the coat-sleeve, but in using this neat piece of apparatus you are quito out of harm's way. I have been developing some 12 × 10 negatives to-day, and have the pleasure of going home with nice clean hands, instead of rivalling an Ethiopian serenader as I have been accustomed to do.

I am, yours, &c.,

WM. KEITH.

34, *Castle-street, Liverpool,*
October 21st, 1858.

INSTANTANEOUS PHOTOGRAPHS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—As a good deal has been said of late on the subject of instantaneous photography, and as several most admirable results thus taken have recently come under my notice, may I request the favour of an answer to the following questions, as I have a strong desire to practice in that way myself next year.

1.—Is the instantaneous process practicable on 10 × 8, or 12 × 10 plates, as well as on smaller sizes?

2.—As negatives of large size cannot be produced except by lenses of long focus, necessitating longer exposure than for small pictures, how is this difficulty got over, unless by the use of very large apertures, which would be unsuited to the production of negatives by the usual collodion process?

3.—Is it not necessary in order to produce instantaneous pictures to use the double combination or portrait lens? and if so, are not large diameters and long foci (*i.e.*, as long as those of the single lens,) requisite to produce similar sized pictures?

4.—Is there any recognised formula for making a collodion susceptible of instantaneous impressions, or to render the usual negative collodion fit for the purpose? There is, I am aware, a so-called "Instantaneous Collodion" in the market, and Mr. Skaife, of Blackheath, has advertised his formula for sale. What is the best mode of iodizing or bromizing an instantaneous collodion?

5.—Can negatives be taken by the instantaneous process, or are positives only produced by it, to be converted into negatives afterwards?

6.—Can you say whether the new lenses of Professor Petzval are quicker and better for instantaneous photography than the usual form of double combination portrait lenses?—I am, yours, &c.,

A SUBSCRIBER.

[1.—Practicable, but not so easy. Much depends upon what is meant by *instantaneous*. 2.—By making use of a good light, and chemicals of great sensitiveness. 3.—Necessary in some cases, but not in all. The diameters of double combinations that will cover a plate of a given size are, of necessity, greater than those for single combinations to perform the same work; the *scale* upon which the objects are delineated is dependent upon the focal length. 4.—"Instantaneous" photography demands that *all* the chemicals employed shall be in a state of purity, in very definite proportion, the collodion recently iodized, and the pyroxyline in a peculiar condition. For that purpose a sensitising bath should be prepared, as directed by Mr. Thomas in a late communication to the *Journal of the Photographic Society*, under the title "How to prepare a normal nitrate bath." The collodion should be made of pure ether and alcohol, free, or nearly so, from water, containing a *large* portion of pyroxyline, but not such as renders it glutinous. A mixture of the iodides of cadmium and potassium, two grains of the former to three of the latter, dissolved in alcohol makes a very sensitive compound a few hours after being mixed; and for a developer we prefer acetate of iron, pyrogallic acid solution being afterwards employed with a little nitrate of silver to intensify the deposit. 5.—Negatives, but rather faint ones, can be taken. 6.—Not quicker, certainly; as to better, that may be a matter of opinion; we have already published our own in these pages.—Ed.]

ANSWERS TO CORRESPONDENTS.

Tyro.—Try Fothergill's process as directed by Mr. Keene of Leamington, or as by Mr. Ackland, at Horne and Thornthwaite's; for the rest see advertisement.

Halifax.—We have never tested the productions of the individual you name, but if you wish for such an arrangement as you describe, we strongly recommend you to Herr Pretsh, 162, Great Portland Street, London.

F. S. W. } Will find what they require in our pre-
Peter. } sent leader, as to testing a portrait combination.

H. H. B.—The lens A of the Ramsden's eye-piece, described in our last, is correctly stated as being one and a quarter inches in diameter, and of one inch solar focus, measured from the flat side of the lens, the convex surface being towards the sun. It is consequently very thick, and embraces a very large segment of the sphere.

A. Bishop.—We presume you mean M. Poitevin's process of photo-lithography, which is dependent upon the same principle as that used by Mr. Fox Talbot in the production of his photoglyphic plates, described in the present No., viz. the insolubility of the mixture of gelatine and bichromate of potash, *after* exposure to light. It must not be forgotten that Mr. Talbot was the originator of its employment, and that photo-lithography is now likely to be superseded altogether by the superior process just introduced by that gentleman.

M. A. H.—Probably not washing of the free nitrate of silver before toning. The toning bath also may be at fault, and the marbling most likely arises from impurity on the surface of the latter.

Thos. Wilkinson Warral.—The collodion transfers to paper that you have sent are like all that we have seen hitherto—*destroyed as regards the tone of the lights;* otherwise, the *transfer is well executed.*

Received.—John Ostell, J. A. Forrest, Photo, and T. L. Merritt.

Review.—Want of space again compels us to omit our notice of Mr. Rintoul's *Guide to Printing Photographs, &c.*; but it is in type, and we hope to be able to give it in our next.

J. Jones.—Mr. Ross's Communication.—Photographic Exhibition at Leeds (second notice).—The conclusion of Mr. Hardwich's Paper on Failures in the Collodion Process, &c., in our next.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 22, Vol. II.—NOVEMBER 15, 1858.

In consequence of the abundance of interesting matter on hand, we have been induced to present our readers with *eight* additional pages this time; and even then want of space compels us to limit our own observations, a fact upon which we congratulate our readers, as we cannot but feel conscious that we have lately occupied far too large a share of their attention.

Amongst our advertisements is an intimation of the forthcoming exhibition of the Photographic Society of Scotland, to be opened in the middle of December, when a novelty, as applied to this kind of display, is to be introduced, in the form of the award of two prize medals for the best works exhibited under certain conditions. This is an experiment that, so far as we know, has not yet been tried; but we are by no means prepared to prognosticate any marked success to the movement, fearing that it is as likely as not to prove the introduction of the apple of discord. We trust that our fears may not be well-founded.

We are glad to find that the Nottingham Photographic Society, though young in its existence, progresses exceedingly well, having already upwards of one hundred members, with the Duke of Newcastle as president, and amongst its number are many skilled amateurs. On the day when their forthcoming exhibition will be opened (Dec. 20th.), prizes are to be awarded to the producers of the best negatives in three sizes, being the *bona-fide* works of residents in the county.

We learn with much regret that Mr. Samuel Cottam, the gentleman who has hitherto so ably performed the duties of Secretary to the Manchester Photographic Society, has been compelled, through indisposition, to relinquish the office. The Council of the Society has, in a graceful manner, recorded its appreciation of his services, by the presentation of one of Messrs. Smith and Beck's best stereoscopes, together with a number of slides for the same.

At the last meeting of the Photographic Society (London), in Coventry Street, we had the pleasure of examining several specimens, printed from plates prepared by the Hon. H. Fox Talbot, or, at any rate, by the process recently patented by that gentleman, and called by him Photoglyphography: these were of small sizes, but from a variety of subjects, and well calculated to exhibit the capabilities of the new craft. Although full of promise, we cannot but admit that they were somewhat deficient in half-tone, being too black and white, and not yet quite free from the defects attributable to all former essays in this direction, but, at the same time, it is palpable that a very grand stride has been taken towards perfecting the manipulations; and though, as we have stated, the middle tints are not all that can be desired, they are not absolutely wanting, as has been too frequently the case before, but simply somewhat weak and shy as yet. Perhaps they are *best* seen in the proof from the plate bearing the representation of a bell; and another good point we observed, namely, that in the landscape the distance was sufficiently marked yet properly subdued. We have great hopes that nothing but experience is wanting to make this process all that is required by the book publisher for illustration. This will not interfere with any *photographic* printing, as the objects of the two are very different.

In our last we alluded to a certain process for printing in carbon, and offered some suggestions in connection therewith; at the same time that those remarks became public, the specification of the embryo patent was also published. Our astonishment has been no less excited by the fact that, to a common-sense reading of the specification, it contains nothing more nor less than what was *previously* included in that granted to M. Poitevin (not as the advocate of the former designates it *vaguely*, but in very plain terms), than by the perusal of a letter in print from the would-be patentee, coolly intimating that his specification "*does not include the particulars of his process.*" Now, unless we have been grossly misinformed, a patent is only procurable *legally* by a *full disclosure* of the invention; common sense also dictates the same—for how can a man be charged with the infringement of a right that is not defined? Truly we have yet to learn the extent to which audacity can go. The whole subject of printing in carbon is proposed for discussion at the next meeting of the Photographic Society (London), when, if there is really anything even promising in the process now before the public, we may at least hope for the exhibition of a specimen or two, if nothing more, by way of guarantee that the whole affair is not "but a sounding brass or a tinkling cymbal." We should be amongst the first to rejoice at emancipation from the detestable hyposulphite of soda, which imparts the offensive odour of sulphur, even to the fingers, every time one has to dabble in the solution, which odour itself becomes suggestive of future destruction.

With reference to the paper positive from various negatives, noticed in our last as presenting some curious defects of deterioration from the length of time elapsing between exposure and fixation, we are informed by the producer, Mr. Robinson, of Leamington, a skilful hand and acute observer, that our conjecture as to the cause of inferiority in some of the parts can scarcely be correct, he having printed it in both directions, that is, beginning with the left hand figure in some copies, and with the right hand one in others; and that the result was invariably that the longest printed before the toning, &c., appeared the least brilliant. He has not found the defect noticed arise, if the whole has been completed within a couple of days from the commencement, nor is it so visible when employing albumenised paper. These are practical facts worth recording.

MANCHESTER PHOTOGRAPHIC SOCIETY.

The Annual Meeting of this Society was held on the 3rd instant, at the house of the Literary and Philosophical Society, 36, George-street. Mr. Laird in the chair.

The Chairman stated that Mr. Cottam, the late Honorary Secretary, having been obliged to resign his Secretaryship from ill health, Mr. Mann had been appointed the Honorary Secretary of the Society.

After the election of the Officers of the Society for the ensuing year, it was unanimously resolved that a vote of thanks be returned to Mr. Cottam for his past services as Secretary.

In consequence of the absence of both the Treasurer and Secretary from ill health, the Annual Report was not prepared for the Society, but would be ready by the next meeting; it was stated that there was a small surplus now in the hands of the Treasurer.

Some very beautiful landscape and sea-views, with clouds, by Mr. Ribble, of Glasgow, were exhibited, and much admired.

Also four very beautiful prints, from collodio-albumen negatives, were presented by Mr. Sidebotham to the Society's portfolio.

A few prints taken by Mr. McCraw's bichromate printing process, by a member, were shown, but considered very unsatisfactory, some being half positive and half negative, and some quite negative, and otherwise imperfect.

A letter was read by the secretary, from the Liverpool Photographic Society, to the members, inviting them to a conversazione at Liverpool, on the 18th instant, when Mr. Shadbolt has promised to read a paper.

The Secretary also read the following Report of the Committee appointed to experiment on the various dry processes on glass:—

Report.

The Committee appointed in November, 1857, to examine the published dry processes on glass, present the following Report:—

Each of the processes has one or more good qualities not possessed by the others, and by all of then good pictures may be produced; but it is only wher the various processes are tried by the same individual that a true comparison can be made.

After very careful experiments, your Committe have arrived at the conclusion that the best dry process yet discovered for landscape photography is tha known as the Taupenot or collodio-albumen process.

Its superiority consists in its rapidity and certainty, and also in the beauty of its results; th fact that since this Committee was formed, th members who previously had successfully practise the albumen, the oxymel, and the dry collodio processes, have abandoned them for the collodio albumen, greatly favours this conclusion.

Your Committee briefly state what they conside the points in which the other processes are inferio

ALBUMEN PROCESS.

The long exposure and development required, an the difficulty in the preparation of the plates, so a to produce an even film perfectly free from spots.

DRY, OR BAKED COLLODION.

The difficulty of producing a collodion of suitabl character, also that the plates do not bear lon keeping, nor prolonged development.

OXYMEL.

The long exposure required and the difficulty carrying a stock of sensitive plates, and keepin them free from dust. The modification of this proces lately published by Mr. Llewellyn, appears ver promising, being founded on the correct principle leaving a definite amount of free nitrate of silver o the plate, but your Committee are not prepared t report finally upon it, although several membe have tried it and speak very favourably of its result

GELATINE PROCESS (DR. HILL NORRIS AND OTHERS.

The time of exposure required is considered to at least double that of the collodio-albumen. Yo Committee have tried great numbers of plates, pr pared both by themselves and Dr. Hill Norri taking the same views upon them and on collodi albumen plates, and their experience in every ca shows that a *very much longer* exposure is requir than that usually recommended. In common wi all dry processes, there is often a deposit formed the plate during the development; this in collodi albumen can be entirely removed, but in gelatine cannot without destroying the picture.

Since this Committee was formed, Mr. Fotherg has published his process, which promises mu from its simplicity. It has been carefully tried some of the members of this Committee, and them considered not equal to the collodio-album process, in the longer exposure required; in t negatives obtained being of inferior quality; a also any deposit formed on the plate cannot removed.

Your Committee will now briefly state what th consider a few of the advantages possessed by the collodio-albumen process.

Any good collodion, whether positive or negative, will do it.

The albumen, being prepared with ammonia, will keep almost any length of time. The exposure required is moderate. Pictures may be taken with an exposure of fifteen seconds and upwards, according to the focus of the lens, subject, &c. The exact amount of exposure is not a matter of such great importance as in some processes. A negative, either over or under exposed a little, may generally be so treated in the development, as to come out quite perfect, whilst any deposit which may be formed on the surface can be easily removed by the finger without injury.

The great drawback to this process, viz., the liability of the plates to blister, may be entirely avoided by adopting the following precaution:—Have the plate thoroughly dry before coating with collodion; leave the film to set well before immersion in the bath; and after coating with albumen, and the plate well drained, to dry it quickly with the face to the fire.

During the investigation of the various processes, your Committee have been strongly impressed with the difficulty under which photographers labour, in the multiplicity of the published processes, each of which is said to surpass all others. Many photographers, working almost alone, are inclined to think too well of their own productions, and, consequently, of the process they use, and your Committee think it would be a great benefit to the members of this Society if specimens were to be procured from well-known operators, or inventors of new processes, showing, as far as possible, of what each process is capable, and also serving as standards of which to judge their own productions.

Manchester, Nov. 3, 1858.

A vote of thanks was unanimously passed to those gentlemen who experimented upon the various processes and prepared the Report.

A general discussion as to the collodio-albumen process took place, particularly as to the blistering of the film.

Mr. BROUGHTON stated that he had very successfully removed the red colour of collodio-albumen plates, occasioned by long keeping, and took with him a reddened plate belonging to a member, which he promised to bring to the next meeting, free from the red colour. He stated the plan he adopted was, to use a very weak solution of bichloride of mercury.

Mr. PARRY explained his contrivance for drying collodio-albumen plates after the albumen coating, consisting of a gas light under very fine wire gauze.

It was proposed and agreed that a lantern should be obtained by the next meeting, and that members be invited to bring transparencies for exhibition.

After passing a vote of thanks to the Chairman for his services, the proceedings closed.

LONDON PHOTOGRAPHIC SOCIETY.

THE ordinary general meeting of this Society was held on the 2nd November, 1858, R. FENTON, Esq., in the chair.

The CHAIRMAN read a note from Sir Frederick Pollock, in which it it was stated that, in consequence of the meeting falling upon the first day of the Michaelmas term, the President would not be able to attend and take the chair.

The CHAIRMAN then introduced the new Secretary, Dr. Diamond, to the meeting, and stated that he would, no doubt, be welcomed by the Society with the same cordiality as by the Council, and hoped his appointment would bring increased prosperity to the Society.

The minutes of the last meeting having been read and confirmed, and several new members elected, Mr. REEVES TRAER, M.R.C.S., &c., read the following paper "*On the Photographic Delineation of Microscopic Objects:*"—

The application of the photographic art, to which the following remarks more especially apply, is undoubtedly one of the most beautiful and interesting with which its followers are acquainted.

Thanks to the modern popularization of science, most people now know, that in each humble plant that thrives in every hedge, there exists a diversity of beautiful minute structure, an examination of which prompts the mind to venerate as well as to admire; while every insect, indeed the whole of animate creation, teems with marvels for the student's eye, which show him how wondrously the Creator's power has arranged and ordered all portions of each economy, whether of high or of low type, so that its intended functions shall best be carried on.

To delineate with the accuracy of photography some of these beautiful structures must surely be both interesting and instructive; and I regret that I have not had opportunities lately of preparing more numerous specimens for your inspection, but I trust that the few which I shall have the pleasure of laying before you will be sufficient to illustrate my remarks, and to prove how easy it is to obtain magnified representations of microscopic objects.

The first difficulty I met with was caused by my attempts to adapt the body of my microscope to a camera. I had read of successes obtained by means of blackened tubes, and of course tried that method, but must confess that I found it both inconvenient and unmanageable. Finally, when in Paris, I had some conversation with M. Nachet, the intelligent microscope maker of that city; and the result was that he made, from my description, the instrument I have ever since used, and which has thoroughly fulfilled the purpose for which it was intended.

The necessary indication in the construction of such an instrument is to adapt the essential portions of a microscope to a camera, viz., the object-glass, the stage, the mirror, and the adjustment. These are so arranged in the apparatus which I use, that the whole screws bodily in the camera, and thus becomes entirely under control.

The first of these essential elements (the object glass) requires some consideration. I would advise any person about to purchase one to go at once to a good maker; he will have to pay a good price for it; but as the whole success of his microscopic study depends upon the excellence of the "glasses" he uses, I am inclined to think that no one will regret the expense, seeing that he will most likely possess as good an article as modern intelligence can produce. Of the stage little need be said, except that it should be of sufficient size, firm, and furnished (if intended to assume a perpendicular position) with a "spring-clip," or some other contrivance which will hold firmly the slip of glass on which the object is mounted. I am of opinion that what are called "stage movements" are expensive luxuries, and not essential to the instrument; for with a little practice the hands will soon be found to become thoroughly educated, and capable of moving the object with the greatest delicacy. I found that the mirror originally adapted by M. Nachet was too small, and I now use one of two and a half inches diameter. Two adjustments, a coarse and a fine, will generally be found to be necessary; the former for focussing when using the lower powers, and the latter when the higher are employed. The milled-head belonging to the fine adjustment may be marked into a certain number of divisions, to enable the photographer accurately to give it any portion of a rotation that he may find necessary, should the chemical and visual foci of his object glass not correspond. There is also an arrangement on the distal side of the stage, which allows me to fix an inverted object glass in the track of the rays of light, and thus condense them on the object itself.

I will now explain, as briefly as possible, the *modus operandi* I adopt; and from that description you will, I hope, fully understand the applicability of the apparatus I have described. Not having a "glass room" at my command, I operate in the open air, and commence by placing my camera on a firm table in the sun, so that its long axis is identical with the sun's rays, taking care to throw a light coloured cloth over it, to protect it as much as possible from the heat. The mirror is now placed at such a distance from the object glass as to equally illuminate the field, which, effusing the concave side, I found was best done by allowing a space slightly greater than its focal length to intervene between it and the object, so that the rays should enter the instrument just after they have commenced to disperse; otherwise, if the object was in the focus of the mirror, I observed a a bright white spot occupying a portion of the field, which quite destroyed the picture. I fancy this was caused by an image of the sun being formed nearly on the same plane as the object, and thus becoming represented on the ground glass. At any rate, I never am now troubled with this difficulty, provided I place the mirror as I have described.

If the object glass be a quarter-inch or a higher power, I always use the concave mirror, and employ an object glass of power next below that with which I intend to photograph, as a condenser. They should now be arranged so as to give a circular field, and when this is *evenly* illuminated, the object may be placed in position, the proper focus found, and then all is ready for the sensitive plate. Should a very large representation be wished, and the operator does not regret a slight loss of definition, he may place a high eyepiece in the brass tube from the inside of the camera. The large photograph of the "Acarus" parasite of the *Xylocopa violacea* was taken under these circumstances.

Photographic manipulation, as practised by me, presents nothing peculiar; indeed, it is that usually adopted in the collodion process. I need not, therefore, enter into its description; but a few remarks on the causes of some failures I have met with will perhaps be interesting.

The first that I had to encounter was the white spot, of which and its cure I have already spoken. The next was induced by the fact, that in object glasses of lower power than a quarter of an inch, the foci of the chemical and visual rays do not correspond: from their being slightly over-corrected for colours the chemical focus is separated a little from the visual, and hence the glass must be moved a little way from the object. Judging from the recorded experience of others, I must be very fortunate in my glasses, for this focal difference is very slight, even in the lowest powers. I may add here, that they are all of Messrs. Powell and Lealand's manufacture. In my half-inch glass this imperfection has been counteracted by the addition, at its back, of a double convex lens, of about four inches focal length; and I have found out by experience how much of a circle it is necessary for me to turn my fine adjustment to succeed with the lower powers.

Another difficulty which I met with was the time of exposure, that general bane of photographers. In common with other operators, I have found that, *cæteris paribus*, the actinic power of the sun's rays varies greatly day by day, and hour by hour on the same day; but with collodion iodized over night, I have taken good negatives on a clear, quick day, in one second, sometimes in less; while on other occasions I have been obliged to expose my plate for seven or even ten seconds, very rarely for more: be it always understood that I am now speaking of an unclouded sun. Once or twice I have, curiously enough, succeeded with a short exposure, late in the day, with the sun within a very few degrees of the horizon.

It may excite the wonder of some of my hearers that I have not alluded to the photography of opaque microscopic objects. I must here plead inexperience, but I am about to institute some experiments with a view of photographing the Foraminifera. The only difficulty I anticipate is that of illumination; but I think that a proper arrangement of an oblique condenser, and a little longer exposure, will enable me to succeed.

I may, perhaps, be allowed to mention that the collodion I now use is of my own manufacture. I confess that motives of economy prompted me to the attempt, and I think it right to pay a tribute of excellence to that manufactured by Mr. Hardwich and Mr. Greenish, to the good qualities of which I can fully testify. The pyroxyline I employ is made in Paris; and it may not be without interest to add that I sensitize with the following combination:—

Iodide of ammonium	2½ grains,
Iodide of cadmium	1¼ grain,
Bromide of potassium	1¼ grain,

to collodion, 1 ounce.

This collodion I have found to be the most sensitive I have hitherto used: I have taken good negatives (portraits) with it in three seconds, and it gives good intensity with half-tone.

And now, gentlemen, although I have not added any new fact to photographic science, I trust I have been successful in describing an apparatus by means of which photographs of microscopic objects can easily be taken; and that, in conclusion, I may be allowed to thank you for your patient attention to the remarks I have had an opportunity of making.

Mr. Harding : Supposing that the microscope is fixed in the camera at this moment as it lies upon the table before you, and you were about to operate, where do you suppose the sun to be?

Mr. Reeves Traer : Behind my head.

Mr. Harding : And you always have it behind you?

Mr. Reeves Traer : Yes.

Mr. Harding : And I suppose that experience has taught you that that is the best position in which you can work?

Mr. Reeves Traer : Yes; you can get a circular field in that way.

Mr. Harding : I suppose it is by working with the sun behind you that you are able to avoid that white spot to which you alluded?

Mr. Reeves Traer : No; I fancy not. I get rid of that by rapidly moving my mirror. I should be very happy if any gentleman would inform me what the real cause of that white spot is. I went to two or three opticians and manufacturers of object-glasses, and they could not tell me.

Mr. Shadbolt : I have been for many years connected with the Microscopic Society of London, and I recollect the introduction of this subject by Mr. Delves, of Tunbridge Wells, who, I believe, was the first person who produced a presentable photograph of a microscopic object. Mr. Traer has suggested one or two points for consideration, to which, I think, photographers will do well to attend. I am very glad that he has brought this subject before the Society; for I confess that I had not the courage to do it, having found in the early days of this Society's existence such an utter and thorough misapprehension of the object of a microscopic photograph, that it was then vain to expect to render one's self intelligible; but as the *furor* for mere details of photographic manipulation is by this time worn out, microscopic photography may have some chance of attention.

The only difficulty we have in obtaining facile impressions of opaque objects is that of illumination, and I have but little doubt about readily overcoming that. The intense white spot which Mr. Traer has met with is, I believe, owing solely to the use of the *concave* mirror, which is unnecessary if he employs a condensing apparatus. The usual mode of working would be by the achromatic condenser. The position selected by Mr. Traer with regard to the sun is certainly something with reference to getting the greatest amount of light, but beyond that I think it would be just as well to have your face or your side to it, the position being immaterial for insuring an uniform circle of light. The "*stage movement*" which Mr. Reeves Traer has said is "*an expensive luxury and wholly unnecessary*," I must state as the result of my experience, that for photographic operations this is correct, but for observation of living objects, a mechanical stage is a *sine qua non*, for it would be utterly impossible to follow the eccentric movements of some animalculæ by hand. A fine adjustment, unless it works very smoothly, is almost useless, as it renders the instrument liable to vibration. In some astronomical telescopes a little arrangement is adopted of a long lever, furnished with a ring and a screw, which pinches the coarse adjustment; the lever hanging down when the screw is loose. This might be adapted with advantage to the microscopic camera, as by fixing that screw your movement can be regulated to perhaps not more than the thousandth part of an inch.

With regard to the chemical and visual foci differing, I may observe that I am intimately acquainted with the microscopic object glasses of Ross, of Smith and Beck, and Powell and Lealand, and I think it is impossible to have any one of those makers' glasses without this difference existing, because for microscopical purposes it is essentially necessary that the chemical and visual foci should differ, in order to allow for the amount of correction that takes place in the eye-piece. It is not that with high powers they do not differ, but simply that the focal length is so small that the difference is scarcely perceptible to the eye, especially with sun-light. If an object glass be either under or over corrected, it will be found that the light from a camphine lamp and that from gas will require a different amount of movement for correction of chemical focus with the same object glass and the same distance; and I think the same remark applies to other artificial lights. With the low powers; for instance, an inch and a-half or two inches objective the amount of correction is soon ascertained for the particular light you employ; but a very convenient arrangement for removing the defect was suggested by one of our members, (Mr. Wenham) a clever microscopist and ingenious photographer. It consists in applying a convex crown glass lens of slight power in the place of the posterior diaphram. One of the most perfect combinations that I know of for microscopic purposes, and the form constantly employed by our three best makers to this day, is that first suggested by Mr. Lister, a Fellow of the Royal Society, to whose investigations it is owing that we have them. This form I consider well adapted for certain photographic purposes. The peculiarity of it is that these two [*pointing to a diagram*] combinations are so arranged that a ray of light proceeding from the first is transmitted in such a direction towards the second, that the correction is absolutely perfect at any point desired. I omitted to state in the previous part of the explanation that there are two anterior foci at which the achromatism is absolutely perfect, but at any point between those two the achromatism is only approximating, and he conceived the idea that by transmitting from the front pair of lenses a ray of light proceeding from the *near* perfectly corrected focus, in the direction of the back pair as if proceeding from its distant absolutely achromatic focus, he would then have an object glass, in which the amount of error in one lens would be exactly compensated by that in an opposite direction in the second lens, and such is found to be the case; so that though we can never have a *perfect* image photographically under any circumstances, yet we might get as perfect a one as we have in the microscope. What I have stated with regard to the low powers does not hold good with the higher ones, say, from four-tenths to one-tenth of an inch, because their construction is entirely different.

The illumination for photographic purposes of microscopic object is a point requiring more attention than usual. When you have illumination from sunlight you have not much difficulty because, of course, you receive your rays parellel to one another, but with artificial light that is not the case. When I was at work at this subject my great object was to use artificial light for the purpose, and I succeeded in delineating many similar objects to those now in the room, enlarged to about three inches diameter. I imagined, *prima facie*, that the more light I could throw on my object the more rapid would be the action, but I did not find it to be so; and, of course, on reasoning upon it I found why. Supposing I had a little flame *here* from a camphine lamp which I exhibited in this room one evening, I got a condenser which brought the rays of light on it in *this* way at an angle of, perhaps, ninety degrees, and the consequence was that, although I had got the light condensed upon the object, the object glass could not make use of it, because it was only adapted to sixteen or twenty degrees of aperture, and as I had ninety on the object I got a false light in the camera. I went to work then on a different tack. I placed the lens in *that* position, and threw the rays of light in this direction, and found I had got much better off, but still could not get the amount of light I wished for. I then came to the conclusion that I ought, in illuminating, to take a precisely similar course to that employed in delineating an object. I had, first of all, placed very close to the flame a small sized bull's eye lens, to collect the rays of light proceeding at a very great angle, probably at one hundred degrees: it was so placed that it would not form an image of the flame, but it simply collected the light in this direction. I arranged this at such a distance from the light that I could fill the whole area of this second lens, which threw the rays nearly parallel, so I could afford to place my object very near to it, and this made a very great difference. Having worked in that way I found that by using, instead of a bull's eye lens, a very small one of similar form, that is to say, a plano-convex lens of great convexity, I got another advantage, for instead of covering a large surface I only covered a small one by the same number of rays, and by this mode of throwing them nearly parallel, or very slightly converging, I found illuminated the object so brilliantly and so perfectly that the rapidity gained was very considerable. In order to ascertain the amount of chemical variation, I recollect working with a parasite of the water rat, the limbs of which are studded with numerous small hairs in different planes. I may remark that the object glasses of the same maker, although worked from the same tools and corrected to the same point *apparently* do not work absolutely alike, but the amount of correction required for one object glass is not exactly a criterion for another. Those made by Powell and Lealand are less over corrected than either Ross's or Smith and Beck's. I may further remark, with regard to the enlargement of the object by means of the eyepiece—of course, as Mr. Traer has stated, you do not gain anything in definition, on the contrary, you must of necessity lose somewhat, and it has another inconvenience, it increases the convexity of the field of view, which is not so flat as when the eyepiece is omitted. Some little time ago I was discussing with Mr. Thos. Ross this very subject, and he told me then that he had had some time in contemplation the construction of an eyepiece expressly for photographic purposes, so as to correct the variation in the object glass itself. There is one other point which, I think, Mr. Traer has left a little without explanation—he did not communicate how he focussed his objects. If you take the ground glass of a camera, and attempt to focus objects requiring high powers, there are certain fine marks and lines which would be absolutely imperceptible upon the ground glass in the camera; moreover, you would require the assistance of an eye-piece, in order to render them perceptible. Now, the most useful adjunct that I can recommend is a positive eye-piece, the construction of which is very simple. It consists only of two lenses fitted in a tube, the foci being as 2 to 3, and they are placed apart at such distance as to be equal to half the sum of their foci, the peculiar arrangement of which is, that you get a flat field of view; you can then use this upon the ground glass of the camera, and you will get the enlargement of the eye-piece to the amount of some twenty or thirty diameters, according to its power. But it is better than using ground glass to take a piece of plain glass, coat it with collodion, sensitize, wash, and dry it, and you will have a beautiful surface on which all the most delicate details of an object will be visible.

Mr. Reeves Traer: I never found any difficulty in focussing. The glass I use is not ground glass—it is matted glass; and I have always found my object sufficiently defined to enable me to see the marks with my naked eye of all the objects I have produced. I have lately been devoting my study to photographing the diseases of the human body, such as the deposit in urine. I have always used sun-light, because I fancy you can get much better photographs by sun-light than by artificial light. Getting a photograph in less than a second I always fancied was a great advantage, therefore, I never went into the question of artificial light. I have not noticed that the addition of the eye-piece had the effect described. If you look at "*that large picture*," you will not find that there is any great convexity.

Mr. Grant (of New York): I should wish to suggest, as applicable, an improvement patented by Mr. Harrison, of New York, termed the "Scroll movement," by which you can move the hundredth part or the sixteenth of an inch without any slipping whatever. [Mr. Grant explained the mechanism as consisting of a pin on the inner tube working into a spiral or volute slit.]

Mr. HUGHES: I am in possession of two of Mr. Harrison's lenses, which vary in their foci. They are the second or third lenses that I have had that varied, and varied considerably. I also work with Ross's, and they do not vary. I think the coincidence of the foci is altogether an English notion.

Mr. SHADBOLT: With regard to the scroll movement, which is an ingenious adaptation of the wedge, I doubt whether it would do for microscopic objects; for, however perfectly a fine adjustment is made, we find they all shake more or less with very high powers.

Mr. GRANT: What made me suggest this was that Mr. Pike, our most celebrated optician in America, has adopted it, and uses it for all his best instruments, even on the very smallest scale.

Mr. MALONE: M. Claudet maintains that every object glass varies according as the light varies, and, therefore, that it is impossible to have an object glass so corrected as to be correct in all circumstances.

Mr. SHADBOLT: I think that M. Claudet is under a misapprehension in consequence of his using a Voigtlander lens, which varies in its chemical and visual foci. I believe it to be perfectly possible to correct a lens so as to be fitted for all times and seasons. I have had some conversation with M. Claudet, and requested him to show me how he operated. The moment I saw him operate, I came to the conclusion that this notion of his was owing to his not being thoroughly careful in the way in which he focussed. The way he worked was with an ordinary magnifier, by which he may see the object, not on the ground glass, but through it. The least movement nearer or further off will alter the focussing plane. It is only by employing an eyepiece of considerable power that you can be certain that you have your focus correctly.

Mr. MALONE: Mr. Shadbolt has put it upon a question of manipulation. M. Claudet is a manipulator, and Sir David Brewster agrees with M. Claudet. He could hardly see a probability of a lens being corrected for white, sun-light being affected in precisely the same manner by a sun-light which has passed through an absorbing medium; which is no longer sunlight, for it has certain rays abstracted.

Mr. SHADBOLT: I may at once remark that Mr. Malone has put it upon quite a different footing than that upon which I understand M. Claudet to put it. I quite agree that the amount of correction for different sources of light, or, what amounts to the same thing, pure sunlight, and sunlight from which some of the rays may be filtered out, must be different; but, if he contends that the difference between sunlight in the morning and evening, or in summer and autumn, must upset correction of the lens, I must differ from him.

Mr. MALONE: M. Claudet finds that focussing in the morning gives a certain result, but focussing in the afternoon does not give the same result. He does not attempt to define the cause, but merely suggests that the sun-light of the morning may have passed through different absorbing media. I have worked with M. Claudet for two years.

Mr. WATSON: I have frequently remarked that in the morning a lens is very different to what it is in the afternoon, particularly as it gets towards sunset; and particularly, if there is a tendency towards yellow golden rays in the atmosphere, you cannot get such a sharp picture as in the morning.

Mr. HUGHES: M. Claudet was the first person who called our attention to this difference in the foci; but I cannot help thinking that M. Claudet has refined upon his own practice, and finally carried his theory so far that he has got it beyond the range of practice. Theoretically, I think we must take it that if the sun's rays pass through the clouds, of necessity they pass through the medium which extracts some of them, and the same in passing through the glass of our own rooms. If this variation is sensibly and materially to interfere with our arrangements, it will cause us to re-adjust our instruments every day and hour. A great deal has been said about the difference of chemical and visual foci, and I believe very excellent lenses have been condemned simply because they have not agreed. I have worked, and others have done the same, for many years with lenses that did not agree. I think it is simply a question of cabinet work. Now, the lenses that are constantly being sold as having their foci coincident, only coincide at certain distances. If those distances are exceeded, their foci vary exceedingly. I put the question to Mr. Ross one day, " Here is a given lens; if I take a plate of a given size—supposing I take the picture of the same size as the object itself—will the two foci agree?" and he would not say "Yes." I work very much in copying and reproducing, and I have this fact constantly brought home to me, that if I enlarge with Harrison's lenses, it varies a certain given distance for portraits; if I make an image of the same size, it varies very considerably; the more I enlarge the greater the diversity.

Mr. WATSON: With Mr. Ross's lens I cannot get so sharp a picture in a yellow light as a white one.

Mr. SHADBOLT: M. Claudet, I believe, always employs a lens that differs in its chemical and visual form.

Mr. MALONE: He affirms the proposition to be a general one.

Mr. SHADBOLT: The practice seemed to me to go upon a lens not absolutely corrected, and a lens not having its chemical focus brought up to its visual one, is equivalent to an uncorrected lens. If that be the case, the amount of variation will differ greatly. Mr. Hughes has hit the question, without being aware of it. If we take a couple of prisms, one being of a larger angle than the other—that of flint glass and this of crown glass—you have an exact equivalent of the lenses; a ray of light falling on them is refracted by both in opposite directions, so that a certain amount of deviation from the right line remains; but the sizes to which the spectrum is *pulled out* by a thick wedge of one, and a thin wedge of the other, are equal. I can make nothing more or less of it, look at it as long as one will.

Mr. Malone: I must observe that Mr. Shadbolt *will* assume that M. Claudet affirms this proposition, because he uses lenses not corrected. Now, M. Claudet uses all lenses, even the new Petzval lens; therefore, you must treat the proposition as one that is true, though I neither affirm nor deny it.

The cordial thanks of the meeting were then accorded to Mr. Reeves Traer.

The Chairman called attention to the various specimens produced by the oxymel process, and by Fothergill's dry process. There were also some specimens produced by Mr. Fox Talbot's new modified method—he has written to the Secretary saying that the specimens are mere essays to give some idea of the nature of the invention. Mr. Malone has also some specimens.

Mr. Malone: In consequence of the publication of Mr. Fox Talbot's specification of the modification of his former patented process of engraving, I thought it would be interesting to bring some specimens which had some basis to start from. They are by M. Poitevin, of Paris, and I think it must be admitted that they form quite a new era in the art. These specimens of M. Poitevin's will bear comparison with any results which have been produced in any part of the world. They are photo-lithographs produced by a mixture of bichromate of potass and gelatine, or of bi-chromate of potass and white of egg. The object to be copied is placed upon a stone so prepared, and it acts in such a manner that the surface shall be so altered that afterwards, upon applying water, it shall take on to certain parts, as upon the ordinary lithographic stone, while other parts of the surface appear to be altered in such a manner that it will receive the printer's ink, when you have simply to lay the paper upon it and pass it through the ordinary lithographic press, and thus print it without any engraving or loss of time, and have the result at once. It will be seen that this is an object that can be carried out upon a large scale. *Here* is a picture of the designer's drawing, copied by the ordinary photographic process, then transferred to the stone and printed off. By this method the original designer's touch is more clearly conveyed than if this drawing were placed in the hands of another artist to put upon the stone, which is a very important matter. *Here* is a specimen which has been untouched; it is a photo-lithograph of a bone, re-produced by the photo-lithographic process in such a manner as to be easily mistaken for the ordinary lithographic process, it being in coloured ink. This process has been patented in this country, but some of the particulars have been kept secret. In this case I endeavoured to learn as much as I could from M. Poitevin. He referred me to M. Ed. Becquerel, and M. Becquerel explained to me that M. Poitevin was not a man of means, and he considered that he was justified in concealing it. He said he was acquainted with all the process, and assured me that it was exceedingly simple and occupied only a few minutes. Still we have this fact that the stone is prepared with bichromate of potass and gelatine. This certainly seems to me to be a process of very great promise. It has been suggested that the light oxidizes the gelatine in such a manner as to give rise to a resinous substance. I thought that the chromium combined with the gelatine. Dr. Franklin informs me that he thinks a resinous substance is formed which resists the water on the stone, but allows the adhesion of the printer's ink.

The Chairman: Here is a process handed up to me, which I will read. "The method I find quite easy is as follows:—I make a solution of gum arabic in water about as thick as molasses; with this I grind on a glass or in a mortar a sufficient quantity of calcined lamp black, ivory black, or other pigment. When the mixture is thorough I add in the dark an equal part by measure of a saturated solution of bichromate of potash in honey, diluted with an equal quantity of water. The whole is now to be carefully mixed by stirring or grinding. This intimate mixture is a point of the greatest consequence. The paper I prefer is the highly albumenized. This mixture is laid on by floating, or with a large flat brush. Dry in the dark. The printing is performed in the usual way, only using about half the time for ammonio-nitrate paper. After exposure, the print is soaked ten minutes or more in water, and then exposed under a stream of water until the whites are fully brought out." I should be very glad if this matter could be brought before the Society upon another occasion, and it would give an opportunity for being thought of previously. I am sure I know gentlemen who can say a great deal about it, and probably may throw a good deal of light upon the subject, which will be more likely to terminate well for the interests of photography than the present desultory remarks.

It is suggested that the subject be brought before the Society at the next meeting. The Secretary will be happy to receive any papers, and Mr. Malone suggests that any person acquainted with any carbon process may be asked to assist us.

The meeting then adjourned.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION.

At an ordinary monthly meeting held at Myddleton Hall, Islington, on the 27th Oct., 1858, Mr. W. Hislop in the chair, the minutes of the previous meeting having been confirmed, the following gentlemen were duly elected members—Messrs. J. Spencer and G. Hilditch.

A paper was then read by the Secretary explaining the use of an apparatus, exhibited by Mr. Legg, for changing plates in the open air, a description of which will be found at page 283 of this number.

Mr. Barber read a paper "*On the causes of failure in the Oxymel Process,*" and exhibited specimens: a discussion then took place. (This paper will be found at page 282.)

Dr. Ryley explained his modification of the collodio-albumen process, (see page 181 of the current volume). Negatives taken by the process were shown by Dr. Ryley and Mr. W. Morley: a discussion then ensued in which many members took part.

Mr. Bingham exhibited a box for prepared plates for continental travelling, a portion of the lid and bottom being made to turn back and having yellow glass on the inside of each aperture.

Mr. Hislop exhibited a stereoscopic camera with double lenses and spring movement for instantaneous pictures.

Mr. D. W. Hill exhibited some pictures from Port Natal.

The Chairman stated that in consequence of the *Photographic Journal* being about to be published twice a month, the committee regretted that the finances of the Association would not allow them to distribute that Journal fortnightly, they had therefore determined to supply the members with the *Liverpool and Manchester Photographic Journal* instead, and trusted that the arrangement would meet with the approbation of the meeting. The proposition was unanimously accepted.

Votes of thanks were passed to Mr. Barber and Dr. Ryley, and also the gentlemen who had exhibited apparatus, &c.

At the next meeting, to be held on the 24th instant, papers will be read by Mr. Dawson "*On the Causes of Fading in Positive Prints*," and by Mr. Hislop "*On the Gelatine Process.*"

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

The Annual Meeting of the members of this Society was held at the Odd Fellows' Hall, on the evening of Tuesday, the 26th ult. The chair was occupied by William Howell, Esq., one of the Vice-Presidents.

In the absence of the Secretary, the following Report was read by Mr. Osborn, the Honorary Treasurer:—

Annual Report.

Your Council, in thus bringing before you their second Annual Report, have again to congratulate you upon the prosperous state of the Society. During the past year many highly interesting and instructive papers have been read, some by your own members, and others by various gentlemen, who have kindly consented to do so at the request of your Council; and your Council take this opportunity of urging upon you the necessity of all contributing, as far as possible, to this branch of the Society's work. They also have to regret the thin attendance at many of the meetings, and to urge upon the members the necessity of having greater numbers present. Since your last annual meeting you have lost three members, one of whom has been removed from you by death, and two have tendered their resignation. Against this you have the addition of five new members; and your Council earnestly entreat the cooperation of all to promote the addition to your numbers so necessary for the welfare of the Society. In the autumn of last year, as you are aware, your Society sustained a heavy loss in consequence of the comparative failure of its exhibition; your Council, however, have the pleasure to report that, owing to most of your members having kindly acceded to their request that they would, for the then current year, double their subscriptions, the difficulty is now removed, and your Treasurer's report shows a balance in favour of the Society of £3 12s. 6d. Your Council have also to report that your Society intends, early in March next, to open a permanent exhibition of photographs at Aston Hall, in connection with the Aston Hall Company's exhibition, and request the help of all your members in aid of the formation of the same. As the room at Aston Hall, where this exhibition is proposed to be held, has been kindly lent, free of expense, by the Aston Hall Company, the expense to the Society will be merely nominal, thus enabling it to reap the benefits to be derived thereby at a moderate cost. Your library has, during the past year, been increased by the kind donations of several books by various gentlemen; and it has been considered advisable that, in future, the books, journals, &c., contained therein, shall be kept at the Secretary's office, from whom any book may be obtained on application. Your Council regret to say that the contributions to the album have not been so numerous as they could wish; and they sincerely hope and request that, during the year which is now commencing, each member will contribute his share towards filling its pages. At this meeting you will have to elect your officers for the ensuing year, as also new members of Council, in place of those who, according to your rules, annually retire, but are, however, eligible for re-election.

A motion adopting the report and statement of accounts having been passed, two or three necessary alterations of the rules were agreed to. One of these made the hour for the annual meeting eight, instead of seven, the latter being found inconvenient.

On the proposition of Mr. Osborn, a vote of thanks was then passed to Lord Calthorpe, President during the past year, and to Mr. Howell and Mr. Geo. Shaw, the Vice-presidents.

Mr. Morris said he had great pleasure in proposing a vote of thanks to Mr. Osborn, the Honorary Treasurer. But for him, the Society would have been long since extinct. He had, in fact, been compelled, with the aid of the Secretary, to do the whole work of the Society.

Mr. Ball seconded the motion; and, in putting it, the Chairman heartily endorsed the opinion of Mr. Morris.

Mr. Osborn, in acknowledging the compliment, said that he had looked upon the Society as his pet child. If his nursing had not been so successful as he could have wished, it was not for a want of readiness to give his services in that capacity whenever they were required. In conclusion, he proposed a vote of thanks to Mr. Haines, the Honorary Secretary, of whose valuable services he spoke highly. This was passed unanimously.

Mr. Osborn then moved the appointment of Sir Francis Scott as president for the ensuing year.

The Chairman, in seconding the proposition, said he considered the appointment a very proper one. Sir Francis had spent the greater part of his life in Italy, and was thoroughly "up" in the art, so that his presidency would, no doubt, be of advantage to the Society.

The motion was agreed to *nem. con.*

The Vice-presidents were re-elected, after which the Council was voted for, the following being the members elected:—Messrs. C. J. Phillips, Brown, J. Phillips, T. Morris, Holyoak, Ball, Browne, and Hart.

The next point was to consider the propriety of aiding Mr. Sutton, of Jersey, in his endeavour to secure the publication of Pouncy's process for printing in carbon. On the suggestion of Mr. Osborn a subscription was at once commenced, and a handsome sum was realised.

The formal business being concluded, Mr. Osborn opened a discussion on Mr. Sutton's paper of suggestions as to the mounting of lenses and construction of cameras. The first improvement proposed by Mr. Sutton was that there should be an annulus round the lens, so as to cut off any reflection of light upon the inside of the tube; and he also proposed that there should be a diaphragm placed midway between the aperture and the lens, so as to avoid the chance of reflection more effectually. The central diaphragm was, in his (Mr. Osborn's) opinion, a very great improvement.

Mr. Morris also thought the idea a good one.

The Chairman said there was a paper in the *Photographic News*, the writer of which seemed opposed to using very small diaphragms. He considered the picture was injured by forcing the rays through the centre of the lens, whereas this had been generally considered an improvement.

Mr. Holyoake said he had found the mounting of the lens, as recommended by Mr. Sutton, to be a great improvement; but, eighteen months ago, he experimented with diaphragms in the way indicated, and found no improvement whatever.

Mr. Morris said that in most portrait lenses there was an annulus inside. A few days previously, a gentleman came to him with some portraits, each of which had a spot in the centre, white in the printing, and dark in the negative. He (Mr. Morris) found that the light had been reflected by the lining of the tube being a bright black. Instead of re-blacking it, he simply put an annulus, so as to cut of the rays, and the defect was cured.

Mr. Osborn reminded the meeting that another of Mr. Sutton's recommendations was to lengthen the box of the camera in front, and insert a diaphragm at the end, the shape of the picture required.

Mr. Hart mentioned that a friend of his, since the paper was read, had lengthened his box, and the result was that he now got much sharper pictures than he ever obtained previously.

The best method of focussing upon the film was next discussed, the general opinion being that it was too difficult of accomplishment to become general. As to the spots, the size of half-a-crown, which Mr. Sutton said had mysteriously made their appearance on some of his landscapes lately, no definite explanation was given.

Mr. Hart thought it depended upon the direction of the camera towards the light. In the morning, for instance (his lens pointing to the north-east), he had difficulty in getting clear pictures, while towards noon they were satisfactory. The excessive reflection of light from a white cloud might also have been the cause of Mr. Sutton's failures.

The meeting then adjourned.

ON THE CAUSES OF FAILURE IN THE OXYMEL PROCESS.

By Mr. Barber.

In noticing some causes of failure in the oxymel process, I must mention that the plan I adopt, and which I think is generally followed, is to use three vertical baths, one for the nitrate of silver, another for washing, and the other for oxymel. It is in the last only I proceed to trace the failure, and give the remedy; for I will assume the collodion and exciting bath to be in a fit state for giving excellent pictures, and disappointment to wait only upon immersion in the oxymel.

After a lengthened experience in this very facile process I find there are two conditions of the oxymel which will account for most of the failures connected with it. *In one case it contains iron.* The plate upon developement has a rusty foggy appearance; the intensity may be increased to almost any amount, but the picture remains as it were buried beneath it. For some time during last summer every negative I took became clouded in this way, and from experiments I made relative thereto I became convinced it was due to the presence of iron; and whether it emanated from impurity in the charcoal used for bleaching the honey, or was contained in the gutta percha of the nitrate bath, I failed in ascertaining; most likely in the latter, as I discovered an excrescence of metallic silver on one part of it, proving the presence of one of the baser metals. By changing the bath and abolishing the use of charcoal I got over this difficulty. Unfortunately I have not preserved one of these plates. I say unfortunately, because I think in giving others the benefit of your experience, you materially assist in showing the stumbling blocks in the road. The old adage, "a knowledge of disease is half its cure," applies with full force to photography.

The ordinary source of iron in oxymel arises from making it in an iron boiler, or in one imperfectly tinned. My method of procedure is this:—Having first mixed some chalk with water, add it to the honey and boil. It is then turned out into a deep vessel, and when cold poured off from the grosser sediment, again heated, and clarified with white of eggs; it will then run rapidly and bright through a strainer or paper filter, after which it is converted into oxymel by adding acetic acid.

Almost every sample of honey gives an acid re-action to test paper, derived, in the first instance, probably from the fumes of sulphur used for the destruction of the bees. The object for adding the chalk is to neutralise this, and prevent its attacking the apparatus in which it is made; it is also of great service in brightening the product. I am not certain that the presence of either tin, lead, or copper would be of much consequence; but the slightest trace of iron is so highly detrimental, that I would not even trust this plan of making it in a state of purity were it to come in contact with that metal in any stage of its manufacture.

In the other case, the oxymel bath contains nitric acid, and as I have also failed from this cause, I will describe how it occurred. In the spring of this year I took a few pictures quite equal to any I expect to obtain from a preservative process. After having suspended my photographic operations for three or four months, I tried a picture with the same oxymel, but found I could get no density, only a plate with unmistakeable nitric acid symptoms, and the way it got there was this. In spite of the washing, some nitrate of silver will find its way into the oxymel bath, and it being the property of nitrate of silver, in contact with light and organic matter, to become reduced, it was evident this operation had been going on here, for the honey had become much darkened in colour, consequently an equivalent of nitric acid must, at the same time, have been liberated, or entered into some other molecular arrangements productive of the same effect. I neutralised this by dissolving some chalk in acetic acid, adding the resulting acetate of lime, which completely righted it. Probably acetate of magnesia would be a better addition, it being a more deliquescent salt. Any alkaline acetate may be employed for the purpose, the nitric acid, of course, unites with the base, setting free the acetic acid. I produce two pictures, one taken before and the other after the addition.

An objection has been made to the employment of honey as a preservative agent because it contains a crystallizable sugar, consequently crystals might form upon the plate by keeping. So they will; but the plates must be kept at least two or three months before they form, so that this appears to me a very much overstrained objection, and of no practical importance. Theoretically speaking, amorphous cane sugar, in its well-known form of barley sugar, would be the proper thing to use.

One more objection, and I have done: the minute spots caused by dust. They are of no consequence, as all who have printed their pictures can testify.

CONTRIVANCE FOR CHANGING PREPARED PLATES IN OPEN DAYLIGHT.

By M. S. Legg.

It consists of a kind of bag, about three feet square, intended to be laid upon a table or even upon the ground, made chiefly of black twilled cotton cloth, but the upper portion is composed of a particular kind of oiled silk, of a deep yellow colour, such as is used in tropical climates for surgical purposes; the lower portion of the bag is double, so that when the box containing the prepared plates is introduced at one end it must be pushed on to the other, and then passed over the inner portion of the bag before it can be placed under the oiled silk, this is sufficiently transparent to admit of seeing any operation that may be necessary, and yet the plate is protected from the action of the actinic rays: the hands are to be introduced through short sleeves at the sides, and there is sufficient room within the bag to allow the back of a whole plate camera and box containing the prepared plates to be placed in it and manipulated without difficulty. The bag being composed of thin and flexible materials may be folded into a small space when not in use.

NEW METHOD OF PREVENTING THE FADING OF PHOTOGRAPHS.

At the late meeting of the British Association for the Advancement of Science, at Leeds, a letter was read from Mr. W. C. McCraw, of Edinburgh, to Sir D. Brewster, "*On a New Means of Preventing the Fading of Photographs.*" To accomplish this object, Mr. McCraw had adopted the following formula:—

"1. Take the white of eggs and add about 25 per cent. of a saturated solution of common salt (to be well beaten up and allowed to subside). Float the paper on the albumen for thirty seconds, and hang up to dry.

"2. Make a saturated solution of bichromate of potassa, to which has been added 25 per cent. of Beaufoy's acetic acid. Float the paper on this solution for an instant, and when dry it is fit for use. This must be done in the dark room.

"3. Expose under a negative in a pressure frame in the ordinary manner, until the picture is sufficiently printed in all its details; but not over printed, as is usual with the old process. This requires not more than half the ordinary time.

"4. Immerse the picture in a vessel of water in the darkened room. The undecomposed bichromate and albumen then readily leave the light and half-tints of the picture; change the water frequently, until it comes from the prints pure and clear.

"5. Immerse the pictures now in a saturated solution of proto-sulphate of iron in cold water for five minutes, and again rinse well in water.

"6. Immerse the pictures again in a saturated solution of gallic acid in cold water, and the colour will immediately begin to change to a fine purple black. Allow the pictures to remain in this until the deep shadows show no appearance of the yellow bichromate. Repeat the rinsing.

"7. Immerse finally in the following mixture:

Pyrogallic acid	2 grains.
Water..........................	1 ounce.
Beaufoy's acetic acid........	1 ounce.
Saturated solution of acetate of lead................	2 drachms.

This mixture brightens up the pictures marvellously—restoring the lights that may have been partially lost in the previous part of the process—deepening the shadows, and bringing out the detail. Rinse finally in water, and the pictures are complete when dried and mounted.

"The advantages of this process may be briefly stated as follows:—First, as to its economy; bichromate of potassa at 2d. per ounce is substituted for nitrate of silver at 5s. per ounce. Secondly, photographs in this way can be produced with greater rapidity than by the old mode. Thirdly, the pictures being composed of the same materials which form the constituent parts of marking ink, it may be fairly inferred that they will last as long as the paper on which they are printed."

STEREOGRAPHY.

By T. L. Merritt.

In the *Liverpool and Manchester Photographic Journal* for the 1st of October there was a paper on the stereoscope by Mr. Ross, of New York, and I felt somewhat surprised that it was allowed to appear without comment, as one portion of it was incorrect. He said, "we must make that distance (between the cameras) precisely *proportional* to the distance between the eyes, and neither more or less." Now, if he had said precisely the distance the eyes are apart, and neither more or less, he would have been right, for no other space can be correct, and the error will be in the ratio of the departure from that space. He then said that the space between the eyes is exactly four times the focal length from the lens of the eye to the retina; and continues, "A binocular view may, therefore, be enunciated thus: it is a combination of two monocular views, formed by a pair of equifocal lenses (the eyes) taken from two stations situated horizontally apart, at a distance equal to four times the focal length of the lens employed. Hence the formula is, when F is the focal length, and D the horizontal distance of the stations apart, $D = 4F$." Subsequently, "This formula will apply to lenses of any focal length whatever, so that lenses of short foci may be used for very *near* objects, and as such lenses will give to distant objects too minute a character, lenses of longer foci should be used for the latter." He then tells us that he uses for stereoscopic purposes lenses of twelve inches focal length, so that the space between cameras should be four feet, when in operation. This I, without the least hesitation, assert, would produce monstrous and absurd results, which I will prove to be the case.

Let the object to be taken be a long building, with a white band along the top, and another along the base, and let the building be divided into equal portions by perpendicular lines, also white (I say white, simply that the results may be more obvious), and at the centre let there be an abutment four inches in front, and projecting fifty feet from the face of the building, and let the operator be at a station opposite the middle of this building. This, taken in accordance with the formula of Mr. Ross, would present the following anomalies:—the lines at the top and at the bottom would be lines vanishing at the wrong sides of the picture—supposing they could vanish at all; but which Mr. Ross, being 'professionally conversant with perspective," knows, as well as I do, *could not be the case.* Then there would be the *two sides*, as well as the front, of the abutment seen, which, to any one placed opposite to the middle of this abutment, could not be perceived at all; and the equal parts between the perpendiculars would become less and less as they approached the middle; and these appearances, taken altogether, produce results that I can only designate as I have already done. It appears to me that all which *ought to be required* in the stereoscope, is such a whole as that produced by *natural vision*, which a variation in point of view of two and a half inches will always effect. The result would be just as much of solidity as in natural vision, and, therefore, in true taste, all that is false must be otherwise.

I shall merely add, that if gentlemen, before they write on this subject, would be at the pains to reduce their theories to practice (as I always do), they would not jump to such erroneous conclusions.

[Unless our memory plays us some trick, the contributor of the preceding paper is the same gentleman with whom we had a controversy some few years back, published in *Notes and Queries.* We do not feel bound to make comments upon every article with which we are favoured, even if we differ in opinion with the views expressed by the respective authors, as we do to a very considerable extent with those both of Mr. Ross and Mr. Merritt.

We think it scarcely necessary upon *every* occasion to state and re-state our own notions so pertinaciously, but are content to let *all parties* have a fair hearing; as comment has, however, been invited, we take the opportunity of pointing out what we consider correct principles in connexion with the subject before us.

We entirely agree with Mr. Merritt, that, if the object of the operator be to produce an *exact transcript* of that which the eyes perceive, *no departure* in the points of view for the respective stereographs, from those enjoyed by the eyes, can be permitted; but, coupled with this condition must be taken also the fact that the said stereographs must be examined through lenses that allow of the eyes of the observer being placed at a distance from the pictures *exactly equal to the focal length of the lenses employed for their delineation*, otherwise each picture *subtends an angle of vision* differing from nature.

We, however, totally dissent from the dictum that "all that ought to be required in the stereoscope is such a whole as that produced by natural vision." We do not see why any person's taste, or want of taste, is to be *arbitrarily* limited by any other person; but, furthermore, we consider that it is sometimes highly useful to be able to produce the effect of a *small model* of a subject as can be readily accomplished.

We are not exactly prepared to admit the correctness of the assertion that certain lines "would vanish at the wrong side of the picture—*supposing they could vanish at all*," but which "could not be the case." If they *could not vanish at all*, it is clear that they *could not vanish at the wrong side of the picture.* We are always ready to facilitate discussion, but trust that our contributors and correspondents will bear in mind the excellent motto, "*suaviter in modo, fortiter in re.*"—Ed.]

PHOTOGRAPHIC EXHIBITION AT LEEDS.

SECOND NOTICE.

From a Correspondent.)

Amongst the contributions from a distance we must not omit some by Mr. Robinson, of Leamington, which included his composition *Fading Away*, before noticed in this *Journal.*

Apropos of the composition groups and large panoramic views, which require so much care in the printing and fitting together of the subject, would it not be possible to produce a negative of the composition or panorama, and print the full size, so that the future copies could be printed in the ordinary method, and without addititional trouble or expense*—presuming that if there were any demand, paper could be procured of any size up to several yards in length.

Mr. Melhuish, of Blackheath, contributed several excellent pictures, of large size, both from collodion and waxed paper negatives, which were extremely valuable, as reminding the local photographers to what perfection the latter process, almost disused in this neighbourhood, has been brought.

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* This has been done by Mr. Rejlander, but the *brilliancy* is thereby somewhat impaired.—Ed.

A considerable number of prints, which formed an interesting and valuable addition to the exhibition—especially likely to be visited by many who would take interest in it on account of the subjects depicted, rather than for the manner of their execution—were contributed by Mrs. Hill, who had received them by post from India. These were a series of about forty views of scenes at Lucknow and the seat of war in the neighbourhood, photographed, we believe, by Mr. Robertson, formerly of Constantinople, and it is needless to give them higher praise than to say that they were fully equal in execution and in interest of subject to the well known views taken by this gentleman at Sebastopol shortly after the capture. We regret that the printing was not equal to the execution in other respects—there being an ugly brown in the body of the photographs, and a sickly yellow in the sky, indicating too strongly but little doubt as to the duration of the prints, even for a short period, and in some of them the plague spots from hyposulphite of soda, insufficiently washed away, had actually made their appearance. We are informed that this is too frequently the case with photographs printed in India and other hot climates. Whether it arises from the retention of an almost exploded method of printing and toning, or from a deficiency of good water, we are doubtful. In one respect the impression was extremely unpleasant, and to the experienced photographer created a similar one, though in a different sense to that of Mr. Robinson's picture, before noticed, *Fading Away*.

The third department of the exhibition was not so successful as had been desired. We had hoped to have seen many specimens of varieties in printing and toning—the uranium process—the carbon process—the Daguerreotype—and varieties of the positive processes—but many of these were wanting. Photographers, both local and at a distance, had not sufficiently appreciated the value of a comparison of notes on these subjects. Messrs. Huggon and Briggs exhibited a positive with very remarkable tones, bleached, we believe, by a salt of mercury; Mr. Fowler some prints from positives, which had been strengthened into excellent negatives. Mr. Stansfeld exhibited a most beautiful negative of the Scar near Bolton Abbey, developed by an iron salt in juxta-position with a print from it—this, perhaps, was one of the most exquisite specimens we had ever seen in which a picture combining rock, water, shadows upon the water, the pebbles forming the bed of the river and foliage were combined—each represented by its proper amount of tone, with boldness, and at the same time without any of that hardness or chalkiness so usually found in photographs of water. Mr. Stansfeld also exhibited some American photographs by the peculiar and little practised modification of the albumen process known as Whipple's. The negative of a log-hut by it was particularly fine, rivalling in every respect the best productions by wet collodion.

The deficiencies in this department were, in the eyes of those who look to the future of photography, much compensated by a series of prints in colours, which had been produced by Mr. Mercer (who read a paper before the chemical section). One of them printed on calico shewed that the finest productions of the camera may be transferred to linen or cotton fabrics, and we should not be surprised to find, that ladies who have their portraits photographed on their visiting cards will also have them printed on their cambric handkerchiefs in lieu of their being simply marked with their names.

Mr. Ward exhibited a large negative by the collodio-albumen process—a positive print—and also a negative by one of the experimental processes with meta-gelatine mentioned in his communication to the section.

Mr. Thompson, of Otley, exhibited a comparative series of stereoscopic proofs by the oxymel process, Mr. Llewellyn's recent modification—and by Fothergill's process—A contributor from Darlington, or the neighbourhood, whose name escapes us, also sent some prints by the latter process, and others by the ordinary collodio albumen one.

On a close and somewhat critical inspection of the productions by Fothergill's process, we found traces of that inequality of the film which appears so liable to result from a partial washing of the plates, and which we fear will prevent this process, in the hands of careless manipulators, from being generally applicable for larger sizes than the stereoscopic plates to which it appears to have been mostly applied.

In conclusion, we think it desirable to say a word or two on the mechanical and other arrangements of this exhibition, which, though not a large one, had contributions slightly in excess of the space afforded by the rooms.

We are given to understand that a much larger number of photographs might have been obtained, but that the amount of the grant for the expenses of the exhibition precluded the promoters exercising their liberality in paying carriage, which they would otherwise have been desirous of doing. This fact may operate as a caution to the promoters of provincial exhibitions, that they must not expect a large number of contributions from a distance unless they are prepared either to pay for carriage or to offer facilities for commercial remuneration by the sale of photographs. The latter was, as regards the late Leeds Exhibition, quite out of the question. There was no person to whom this responsibility could have been committed, and there was no possibility of obtaining any adequate offset against the expenditure by a charge for admission to the public.

It was at first apprehended that the fittings of the rooms would have been extremely costly, as a condition was imposed that no nail whatever should be driven into the walls. The ingenuity of Mr. Dixon, the secretary of the Leeds Photographic Society, however, overcame this difficulty. Supports of about ten feet in height were screwed to the floors by brackets, so arranged that the upper end of the former, which were well padded, sprung against the wall. From these, horizontal rails of plain wood (we believe laths such as are used for slating) were extended, and to which the frames were conveniently hung.

The frames of the photographs by local contributors were, by agreement, made of corresponding sizes, and were simply of polished deal. These hung so uniformly and neatly, and so closely together, as to conceal the frame work on which they were placed, so that when the exhibition was cleared away there was not a single mark left on the walls.

There was another arrangement adopted which is well deserving the attention of those having the management of photographic exhibitions—the promoters had determined to receive *unframed* photographs if uniformly mounted, and Mrs. Hill's contribution of forty-six views from India was in this condition. In order to meet this requirement, instead of bars to the uprights before mentioned, were placed thin boards which were covered with plain white paper in the manner in which a room is papered. Over these were placed slips of wood having double grooves at proper intervals, so that the plates of glass could be lifted to the upper groove and slipped over the lower one, so as at once to cover and preserve the photographs placed behind them. The expense of this arrangement, which enabled the photographs to be received in portfolios instead of in frames, was much less than might have been anticipated.

As it may be interesting to have some idea of the total cost to the promoters of such an exhibition we made inquiry on the subject, and were informed that the grant was limited to £30, and that the expenditure will not exceed that amount.

REMARKS ON SOME FAILURES IN THE COLLODION PROCESS.

By T. F. Hardwich.

(*Continued from p.* 127.)

In treating of white spots on collodion films in our last paper, we omitted to mention as one cause, the use of an iodiser containing more iodide of potassium than the collodion is able to carry in solution. The spots are usually very minute, and have a transparent tail taking the direction of the draining in the slide. It is a curious circumstance that collodion will often work quite free from spottiness when, nevertheless, an excess of iodide of potassium is present. The experiment has been tried purposely of adding one quarter of a grain more iodide than the mixed solvents would retain. The result was that when the pyroxyline was left out immediate milkiness occurred on adding the iodizer, and a finely divided deposit settled to the bottom; but when it was present the liquid remained clear. In another experiment a collodion was iodized purposely with more iodide than it would bear, and the pictures carefully examined. There were no spots, and yet in the course of two or three weeks a crystallization took place upon the sides of the bottle. Therefore, we must not always expect to see immediate turbidity in over-iodising with the potassium compound, the collodion may remain clear and yet too much iodide be present. The proper remedy is to mix a drachm of the faulty iodizing solution with half a drachm of a solution of sixteen grains of iodide of cadmium in an ounce of alcohol of ·816. A single drop of water in an ounce of collodion will make it carry a larger portion of iodide of potassium, but the water should be dropped into the iodizing solution before mixing it with the collodion, since it is more easy to prevent the iodide from falling than to re-dissolve it when once it has been precipitated. The same remark applies also to the use of bromide in collodion containing iodide of potassium, the bromide should first be added to the iodizing solution, in the proportion of about one-eighth of a grain to two drachms; then mix this with six drachms of plain collodion, and no spots will result unless the collodion contain an insufficient quantity of alcohol. White spots produced by precipitated bromide or iodide of potassium do not show any central black nucleus when examined with a lens.

Returning once more to the wavy transparent streaks running from the top to the bottom of the film, it may be observed that it is of great consequence to drain thoroughly on blotting paper; and especially so with stereoscopic glasses, which take a different direction in the slide to that which they have in the bath. Hence the markings are in many cases seen only on one of the two pictures, viz., on that part of the film which touches the blotting paper when the plate is held longitudinally to drain. The peculiar aspect of these markings will not fail to attract notice, the centre and margin being often opaque with lines of transparency between, in this case the little stream of liquid acts as a lens, and condenses the light to a focus. Absolute alcohol was spoken of as a remedy when the film repels the bath liquid in this manner. The specific gravity should be about ·800 or ·810. A spirit of the proper strength may be obtained without the use of lime, by rectification from dry chloride of calcium; it is more to be depended upon than the really absolute alcohol, which can rarely be purchased, and sometimes contains impurities injurious to the sensitiveness of collodion.

The attention of photographers was lately drawn to a state of commercial nitrate of silver, which render it unfit for producing dense negatives with good half tone. The plan of fusion has been tried extensively for nearly two years, but on the whole it has not been found to answer, whether from carelessness in melting, or from the presence of organic matter in some shape, the fused nitrate has in many cases yielded foggy baths, and given rise to smears and stains on the negative. The most obvious remedy is evidently to prepare pure nitrate of silver purposely for the bath by dissolving real silver in nitric acid, but it has now been so long the fashion to buy crystallized nitrate of silver at low prices that in all probability few operative chemists would care to undertake such a manufacture. The commercial nitrate is mostly a bye product in the processes of parting gold and silver and assaying; and very frequently it undergoes little or no purification. Doubtless a second crystallization would improve the quality materially, but even in this case the retail price could not fall very far short of four shillings and sixpence or five shillings per ounce. The public must therefore agree to this price before any permanent improvement in the manufacture of nitrate of silver can be expected.

With regard to the particular kind of failures which depend upon the use of bad nitrate of silver, they are mostly loss of sensitiveness to the dark parts of the object, with a very weak development in the blacks of the negative. This the operator is inclined to attribute to the presence of free acid, and indeed the appearances are very like those produced by nitric acid, but in reality the impurity is of a different kind, and cannot be cured by simply neutralizing it with carbonate of soda. The addition of an acetate is the best thing that can be done to the bath, but the solution will always be inferior to a bath made from really fine nitrate of silver.

A form of failure in which the image is blurred and presents an appearance as if it were draining down to the bottom of the plate, depends in a great measure upon the state of the bath above described; but it is aggravated by working at a low temperature or in a feeble light, and also by placing the plate in the slide with running nitrate solution upon the surface.

THE NEW PETZVAL LENS.

By Wm. Ross, New York.

No diagram of this celebrated combination has yet found its way to this country, without which it is very difficult to understand wherein its claimed improvement consists.

As soon as it was first announced here, and long before the most vague description of it had been given, it was gravely asserted in "our Journals," that the problem had already been quietly solved here, and that a more celebrated optician (for this last term read "*common lens maker*,") than either Dr. Petzval or Voightlander had not only done so, but had made the lenses themselves "eighteen months ago!"* a *canard* of course, but its key will be found in the fact that the *celebrated optician* cannot sell a lens except through two houses, who are equally celebrated as "Dealers in Photographic materials," who each own *(sub rosa)* a *Journal* of their own—hence the facilities for celebration.

Whatever may be the qualities of the new lens, it is henceforth—"An American Invention" and so far as I can see, from the published descriptions, the priority of date will not be worth disputing.

Mr. Fenton's statements of his trials with it are the first reliable accounts we have of it. M. Pretch's German idiom is to me incomprehensible, and Dr. Petzval's own is, although better English, still less *descriptive* of the lens than could have been wished, especially from the inventor. From the first announcement of the thing I was led to think that all the three lenses were used at once, till Mr. Fenton "let the cat out of the bag," and showed the new additional lens to be only a substitute for one of the others. Fom all the other statements since published, this must be the fact, although some of them are not very explicit on that point, and so far as *they* go, leave this in doubt. I, therefore, assume the fact of substitution as being confirmed. The whole claim therefore, simply amounts to getting an impression in a shorter time than with a lens of the ordinary description.

The ordinary landscape lens is a single achromatic, in front of which a diaphragm is usually so placed as to be readily removed and replaced by another containing a larger or smaller aperture as the wants of the artist may require. The time in which the impression can be made is directly as the area of the aperture in the diaphragm, compared with the focal length of the lens.

For portraits, in addition to the above lens, another achromatic lens is placed behind it, at a distance much nearer to it than where the image is formed; the effect of this is to change the direction of the rays transmitted through the first lens, and cause them to form an image—not only much nearer than where it would be formed by the first—but also smaller and brighter, by condensing all the rays into a smaller area. From this squeezing the image into a smaller space much of the aberration of the oblique rays is rendered imperceptible to the eye, and this is the same as if it were entirely removed—consequently a much larger aperture may be and is used with a double combination than can be used with a single lens.

But, according to the claims for this new lens, its substitution for the above back lens is to cause an enlargement of the picture above what the front lens would give alone, while it shortens the exposure and at the same time renders the image *sharper*, attributes which seem to me incompatible, except by supposing that the new lens is of very much longer focus than the one for which it is substituted, so as to enlarge the picture (nay, in order to do this, it must be a *concave* lens, even though one of its component glasses may be *convex*, for we are told it is achromatic), and that the aberrations are cured, either by a small aperture, or the lens itself must be of much smaller diameter; in which case most of the light from the front lens will of necessity be entirely stopped out. What particular benefit can we derive from the lens as now proposed? We merely substitute a small lens behind our present landscape lens, instead of a diaphragm with a small aperture, which would answer every purpose of the new lens, for its faculty of enlarging the image enlarges also its imperfections, whatever they may be.

With any kind of a lens of large aperture, and whatever its focal length, our impressed image is only a compromise, selected, as we may term it, from among a number of images all formed near together, not on different *planes*, but on different bases of globular surface, and we select and call the focus that one which appears to the eye as being less indistinct than the others, being in fact the circle of *least confusion*. To reduce the number of these bases or circles with their separate images is the object of stopping out the rays that form them by a diaphragm, and in proportion as these are shut out, so much sharper and more distinct will be the impression. A plane surface cannot, therefore, have an image of a plane object equally sharp all over its surface, unless such surface equals only a very small part of the focal length of the lens. A landscape, however, has its various parts in different planes; but when these are all *beyond* a certain number of focal lengths of the lens, no difficulty is experienced in getting the focus—while, when they are situated within this distance more skill is required to get a fair picture, and this increases in proportion as the distance between some of them and the lens decreases. In many cases the difficulty can be overcome by using a lens of short focus, but wherever practicable, a lens of long focus is to be preferred, especially where any rectilinear object is near the margin of the proposed view. With the new Petzval lens we shall be no better off than before in either of these cases, while in America our light is so good that I get *instantaneous* stereographic impressions with an eighth of an inch bottle aperture in sunshine, as if there were a foot of snow on the upper surface of every projection as well as on the ground, caused by over-exposure, although the lens is opened and shut by a spring.

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* *i. e.* About Aug. 1856.

In the above paper I may have been arguing on false data in regard to the new lens. Could not a crude diagram, without regard to scale or degree of curvature, be given in the *Journal?* It would no doubt be of interest to many others as well as to me.

[The preceding was written by our American correspondent shortly after the first rumour of the newly-introduced lens reached that country, and it will be at once noticed that upon some of its peculiarities he is completely at sea, more especially upon the mode in which the aberrations are rectified. These misapprehensions have been doubtless by this time corrected by better information; but we have considered that it would be interesting to our readers to lay before them a genuine expression of the impression realised from an American point of view, from the first announcement of the lens in question. Some of the theoretical observations in the preceding article we cannot assent to, but it is needless to particularise them at present. —Ed.]

REVIEWS.

A Guide to Painting Photographic Portraits, Draperies, Backgrounds, &c., in Water colours, with concise instructions for tinting paper, glass, and Daguerreotype pictures, and for painting photographs in oil colours, by A. N. Rintoul, *with diagrams printed in colours, &c. Third Edition.*

(J. Barnard, Oxford Street, London.)

After a few introductory pages chiefly upon the early history of photography, the author commences his instructions by a short chapter upon the Choice of Photographs upon which to operate, from which we gather that those lightly printed and greyish in tone, consequently somewhat cold and flat, are better adapted for the purpose of painting upon, than the warmer and more brilliant pictures that are valued by the connoisseur. This is so far fortunate, that a greater number of proofs are thus utilized than if either kind were necessarily thrown aside altogether. Then follow a few hints upon fixing and otherwise preparing the proofs to receive the colours, and very particular and detailed descriptions of, and instructions for using each individual pigment employed in the art. These instructions are materially assisted by the use of coloured diagrams explanatory of the method of shading, not by deeper tints of the same colour, but by the admixture of various pearly tints and greys, which the author, as an artist, contends is a more correct mode of proceeding, and we are not disposed to dispute his dictum, seeing that he must know much more about the subject than we do. This part, occupies no less than thirty pages of the book, and though careful and precise, is by no means superfluously redundant. We may remark that the aim of the author is very different to that of Mr. Simpson, whose work we noticed in our last, the latter gave hints for *tinting* photographs; Mr. Rintoul desires to *paint miniatures*, using photographs as a basis to work upon chiefly for assistance in outline; for, not only does he desire the lights to be coloured, but the shadows to be laid in subsequently, thus literally obscuring the whole of the original proof. Now, this is perfectly legitimate, because there is no false pretence about the matter; the purpose of producing a *painting*, and not a *photograph*, is at once admitted. The preceding remarks apply both to painting in oils as well as in water colours. In order, however, to extend farther the use of his work, the author has added two chapters, one upon "Tinting glass positives, Daguerreotype plates, &c.;" another shewing how "To tint photographs slightly," which, being short, we extract as a sample of the author's style.

"The following easy method of tinting photographs is well adapted for persons who have little leisure for the other and more artistic manner."

"Having prepared the photograph in the usual way, take a little pink madder, carmine, and Indian yellow, or whatever colour most resembles the carnation; lay it on the cheek, and with a clean pencil soften it carefully all round the edges, blending the tint into the face. Repeat the process once and again, till you have obtained nearly as much colour as necessary;—I say nearly as much, because you have to pass the general flesh-wash over it, which has the effect of darkening it considerably. For the purpose of softening, it will be as well to have two pencils on one holder. It might appear that putting on the colour of the cheek at once, and softening it, would suffice; but you will get it far softer by doing it with a very pale tint two or three times, than you possibly can by making it at once as powerful as necessary; besides, it is impossible to soften a strong colour so well as a pale tint. When the colour is quite dry, go over the whole of the face with the flesh-tint, then put in the hair, eyes, eyebrows, and lips; round off the forehead with a grey, and apply the same to those parts of the face where you observe it to be in nature. If your photograph be a very dark one, you will not require so much grey in it as if it were a light impression; next wash in the background, and proceed with the draperies, &c."

"Return now to the face, strengthen the carnations, greys, and shadows, by hatching* delicate tints over them; put the light in the eye and the spirited touches about it and the eye-brows, mouth, &c., and finish off the hair. In dark photographs you will require to lay the lights on the hair with body colour, as it is generally much darker than it appears in nature. Make out the linen with a grey, deepening it in the darkest parts, and lay on the high lights with Constant or Chinese white. Proceed next to shadow the drapery, and when you have obtained the required depth, scumble in the high lights, using a bare pencil and a very gentle hand, as before directed.

"Give the background another wash, if requisite, and your photograph is finished.

"If there be metal buttons, chains, or epaulettes, they must be laid over the dress with body colours; a very good ground for them is red chrome and gamboge, shadowed with burnt umber, and heightened on the lights with lemon chrome and Chinese white.

"By the foregoing method, it will be unnecessary to hatch or stipple a great deal; for you will find that the face will come out very soft and round without it, but the effect is far inferior to that produced by the other process."

We think, by the way, that we know a better recipe for the preparation of mucilage than that given at page 59, and which we may as well indicate here.

Dissolve some pure white gum arabic in hot water to about the consistence of thick cream, then add about half a drachm of pure glycerine to each fluid ounce of the gum. This not only preserves the mixture better than the spirit, and prevents its cracking better than the sugar, but is less liable to change from evaporation.

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* Hatching is that effect which is produced by the crossings of the pencil, after you have given to the head all the larger washes, and must be done in the manner described above. To an inexperienced eye hatching assumes the appearance of a series of dots.

We are informed that many miniature painters are regarding with a jealous eye the inroads that photography is making upon their hitherto exclusive domains; let them procure Mr. Rintoul's book, and they will see how they can retaliate; for, it must not be forgotten, that he does not attempt to convert photographers into colourists, but to enable artists to make use of photographs.

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

NOVELTIES IN OUR ART.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—It has often been remarked that a little *facetiæ* would not disgrace the pages of a Photographic Journal, if connected with the art. The following is extracted from the "Notices to Correspondents" of one of your contemporaries, and is evidently written in sober earnest; any one acquainted with typography will see that it is no printer's error. I fear the author must have been in a sad state of abstraction when he wrote it.

I should have tried the process but have not sufficient skill to make a solution of *pure* iron for a bath. There are a few other curiosities, both *scientific* and *grammatical*, which quite puzzle me:—

"We know of no means of quickening the collodion, except by leaving out all useless rubbish, and iodizing with pure neutral nitrate of silver, and develop your negatives with iodide of potassium. make the bath with pure iron, and if necessary, intensify them, after having fixed them, by re-development with iron and silver. By this plan you may reduce the exposure to the shortest at present known, and produce negatives abounding in beautiful modulation and half-tone, and exquisite definition. This is the best negative process we know of, and the best collodion for the purpose is that which we have called alcoholic."—Yours truly, QUIZ.

TO TRANSFER THE COLLODION FILM FROM GLASS TO GLAZED LEATHER OR CLOTH.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—First cut your leather or cloth a little larger than your glass positive, lay it face upwards on a table; then take about half an ounce of spirit of wine, and add four ounces five drops of nitrate acid; shake it up and it is fit for use. Take the positive, after being dried by the fire or otherwise, and pour the above mixture on as for collodion; and when, still wet, lay it on the leather or cloth face to face, gently squeezing out the air bubbles, and keep them in close contact either in the printing frame or in a book, or any convenient place, until the spirit of wine is dry, which may be half an hour or so; then take out and separate the glass from the leather or cloth, and the film will be so fixed to the black surface that you cannot even scratch it with your finger nails. It may be well to use a collodion a little thicker than usual in cotton for transfers. The above is a certain, cheap, and easy method of manipulation. Further information will be given (if needed) to any one sending a stamped envelope to 180, *Castle-st., Carlisle,* JOHN OSTELL.
Oct. 21, 1858.

INSTANTANEOUS PICTURES.

To the Editor of the Liverpool and Manchester Photographic Journal.

Dear Sir,—Many plans have been proposed for rapidly opening and shutting the camera, so as to take instantaneous pictures. I enclose you a drawing and description of a revolving lens cap, which I exhibited at a meeting of the Manchester Photographic Society more than two years ago. Since then I have occasionally made use of it, and have always been greatly pleased with its action, and think that for the purpose it is superior to any other plan. Any one can get it adapted to a camera, without paying for a patent right.—I am, &c.,

Manchester, Oct. 28, 1858. J. S.

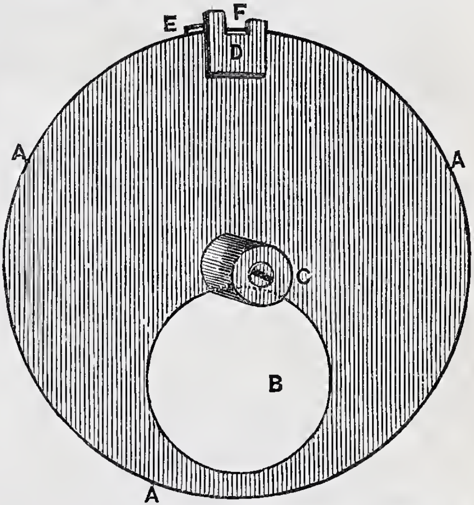

Fig. 1.—A A A. A disc of thin metal, rather more than twice the diameter of the lens cap.—B. A circular opening, the same size as the aperture of the lens.—C. A small box containing a spring in the centre of the disc.—D. A small catch on the edge of the disc.—E. A small trigger attached to the lens cap.—F. A small depression in the plate D, retaining the catch or trigger.—When used, turn forward the disc on its centre entirely round till the trigger E falls into F. When the picture is to be taken, release the trigger by pressing the finger, and the disc revolves, the aperture B passing the opening into the camera.

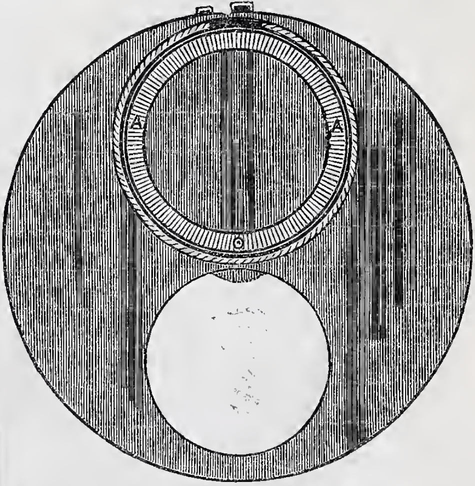

Fig. 2 is the other side of the instrument. A A shows the cap of the lens.

MICROSCOPIC EXAMINATION OF COLLODION.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—I beg to differ with you regarding the value of microscopic investigations of collodion. Take, for instance, Ponting's collodion. Everybody winds up their opinion by saying, "Oh, its cadmium;" but if you will take the trouble to look at a drop evaporated on a slip of glass through a magnifier, you will observe the crystals have no resemblance either to the iodide, bromide, or chloride of cadmium.

October 26, 1858. I am, yours, &c., PHOTO.

[If our correspondent had had as much experience as we have in examining, microscopically, crystals of various salts formed *in contact with organic matter*, he would be aware that the rule is that a considerable modification, not to say alteration of form, as compared with crystals from a pure solution, ensues. Moreover, there is no difficulty in ascertaining by chemical tests what he requires.—Ed.]

ANSWERS TO CORRESPONDENTS.

Samson Brass.—We have suggested various substitutes for brass in mounting photographic lenses, amongst them "papier machié" and also "vulcanite."

Received, R. S. D., Jabez Sidebotham, C. J. Burnett, H. P. R., and Town.

J. Jones.—The syrup used by Mr. Gulliver consisted of honey, water, brown sugar and acetic acid—the proportions were not given by him, but the following will certainly answer:—Water eight ounces; honey, four ounces; brown sugar, four ounces; Beaufoy's acetic acid, one ounce. Do not add the last item until the others are dissolved in the water.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

The Third Annual Exhibition of the Society will be opened on 15th December. Two Silver Medals will be given as prizes for the two best Photographs exhibited. Works intended for Exhibition must be sent to the Rooms, 90, George Street, Edinburgh, on the 1st or 2nd December, after which none can be received.

For further particulars apply to the Hon. Sec.,
49, *Northumberland Street*, C. G. H. KINNEAR.
Edinburgh, 1st *November*. 1858.

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SAMUEL NEWHAM, Esq., Nottingham Park.

It is intended to Open an Exhibition of Photographs about the 20th of December next. Residents in London and its vicinity, who desire to exhibit, are requested to send their works to Mr. J. Green, 14, Charles Street, Middlesex Hospital, not later than the 10th of December. Persons residing in the Provinces can address their pictures to the Secretary of the Society, Government School of Art, Nottingham, to whom all other communications can be addressed.

FOR SALE.

One of Horne's best Box Stereoscopic Apparatus for the Dry Process complete. It has Six Dark Slides, with View and Portrait Lenses to fit the same Camera, which are 4½ inch focus, both of which are warranted. Its original cost was £11 5s. It has been used to a very limited extent, only during the past summer, by an Amateur, who has no further use for it. Price £6 10s.

Address J. P., 146, High Street, Southampton.

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Messrs. Squire and Company beg to announce they have now ready the New Crystal Medium, on which to take Portraits pliable and transparent, applicable to Brooches, Lockets, Pins, and Rings, and transmission by post.

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52, King William Street, London Bridge.

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Agent for the Liverpool and Manchester Photographic Journal.

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LONDON: A. MARION & CO., 152, REGENT STREET (W.)
N.B.—Messrs. A. MARION & CO. have just received fresh supply of "PAPIER DE SAXE."

The Liverpool & Manchester Photographic Journal.

New Series. No. 23, Vol. II. — DECEMBER 1, 1858.

When we paid a visit to our Liverpool photographic brethren in July last, we were shown a novelty, in the form of a camera stand, which we subsequently described in these pages under the name of the "Umbrella Tripod." We have very recently paid them another visit, for the purpose of reading a paper at a meeting of the photographic section of the Historic Society of Lancashire and Cheshire — which paper will be found in another column. Upon the occasion referred to, we attended a banquet, both material and intellectual, with an invitation to which we were complimented in the kindest way by the Liverpool photographers, and at which we received the highest gratification, not only on account of our making the personal acquaintance of many with whom we had been previously in correspondence, and renewing it with others already known, but also from experiencing the manifestation of that excellent feeling which is one of the principal pleasures of a pursuit that forms a point of union for all engaged in it, no matter what may be their respective social positions. We take this opportunity of again tendering our thanks for the very cordial reception we met with—and at the same time communicating to our readers some of the intellectual part of the entertainment. In the first place, we had papers from Mr. Frank Howard (a predecessor in the conduct of this *Journal*) and Mr. Foard, which will be found in the present number; a report from Mr. Berry, upon the variability in the actinic-transmissive power of various kinds of glass; and the exhibition of some beautiful specimens of photography by Mr. Rejlander, Mr. Chadburn, and others; together with some ingenious photographic apparatus, amongst which was a *photographic wheelbarrow.*

This wheelbarrow somewhat resembles in appearance a baker's barrow, but is of much smaller size, and is in effect a portable operating room, containing all the materials and appliances for taking large-sized pictures upon humid collodion. It is the contrivance of Mr. William Cook of Liverpool, and consists of a rectangular wooden chamber, about three feet by one and a half in area, and about two feet high. It rests upon a couple of springs attached to an axle, upon which a pair of ordinary coach wheels, but of lighter construction, revolve, a pair of handles being attached to one end.

The box is also supplied with four legs of variable length, most ingeniously contrived, so as to admit of almost complete retraction within the body, or protrusion sufficient to lift the chamber to any convenient height for operating, when the wheels may be removed for the time being.

The sides are made to open in various ways to introduce the materials and apparatus, and to admit light; and one of them is hinged to the top, in such a manner that when opened, is retained in position by a pair of struts, it forms the top of a sort of tent produced by curtains attached to it, and depending therefrom, thereby allowing the operator to stand in comfort to perform the requisite manipulations within the chamber.

By a somewhat singular coincidence, a letter was received by Mr. Forrest, for communication upon the same occasion, from Mr. Rejlander, containing a number of interesting and useful hints that we purpose inserting in a future number. One of them, however, we cannot resist giving at once, viz.—"First, I have turned my camera into a *wheelbarrow.* I can't say how long it is, for it *varies as the distances;* but it is something above 20 × 30 inches in the square; and although for its size it is, perhaps, the lightest ever made (I made it myself), yet it is difficult for one man to carry, because of its dimensions, and certainly every thing belonging to it—except Petzval's lens—is four times the bulk of the appendages of an ordinary camera. From experience, I know that too much manual labour takes away from the serenity of the mind, or prevents a calm contemplation of things, if you are to use both mind and body at the same time. You and your *confreres,* who know what baggage appertains to such a camera, can easily imagine the flutter of a little fellow like me, removing all these things two or three hundred yards further on, or perhaps even a second removal, after having been helped down with them. I have had friends with me, and they have often spoiled my intentions by conversation. Assistants are expensive to travel far with, and hired men want looking after. Well, I resolved and I have done it—I have added to my baggage a light made wheel and axle, and use it thus: I take asunder my huge tripod, reverse two of the legs, and put the ends of the iron axle into holes in the legs, and secure them with a couple of pins outside; put the third leg across in two nicks, and the board on which the camera rests, when on the tripod on the bottom on the two legs that are now turned into arms, and my camera, stuffed with sweets, acids, and other good things, upon that, and off we go—that is, I and my dog—as independent as you please, and have had happier working days than before that wheel was put in motion."

Truly the manner in which those engaged in similar pursuits find their ideas running in parallel directions, is sometimes very droll. Here we have the same primary idea developed in different ways.

We beg to remind our readers, that the Exhibition of the London Photographic Society will be held in the Suffolk Street Gallery, and is to be opened early in January next. Pictures will be received up to the 20th instant.

We are informed by the Secretary of the Nottingham Photographic Society, that their forthcoming exhibition is intended to include all the newest contrivances in lenses, cameras, and apparatus of every description used in our art; and that in consequence of a postponement of the intended day of opening, the various contributions will be received up to the 20th instant by Mr. Joseph Green, 14, Charles Street, Middlesex Hospital, London; or by Mr. F. R. Fussell, Nottingham.

We find that some of the hints thrown out in our late notice of the Leeds Exhibition have been adopted; and that it is intended, besides a day admission at ordinary charges, to reduce the amount levied for admission in the evening to one penny, in order to extend the benefits to members of the labouring classes. This is a step much to be commended: it not only displays a right spirit, but is good policy too; for the greater the number we can interest in photography, the more numerous are the advantages to be derived therefrom.

We have been favoured by Messrs. Murray and Heath with a copy of their letter, published in *The Times* on the 18th ult., descriptive of a pseudo-new (!!) process, employed by the Rev. J. Lawson Sisson. The writers, having seen specimens which they pronounce (and probably with justice) unquestionably successful, and being informed of the method of manipulation, arrive at conclusions that we are by no means prepared to endorse, and which certainly do not follow as a consequence upon the details given; which are *nothing more nor less* than those of Mr. Llewellyn's oxymel process, with the exception of a substitution for *pure oxymel* of an *impure* one, viz. —raspberry syrup; which, by the way, it is stated that there are *chymical* reasons for using. We suspect, that the gentleman who employed this agent is more learned in theology than chemistry; for unless we are mistaken, he introduced, some years back, what he fancied was a *new* developing agent, which turned out to be nothing but nitrate of protoxide of iron, only the rev. gentleman made his solution by the double decomposition of sulphate of iron with nitrate of lead; while Dr. Diamond's formula, then recently published, directed nitrate of barytes instead of the salt of lead—in either case an insoluble sulphate being produced, and simple nitrate of iron being left in solution.

For the benefit of those who are fond of *new processes* like the one quoted, we will give another —let them replace the raspberry syrup in the above by some strong ale that is slightly sour, and we will answer for it they are just as likely to get good pictures. Not only can they have an ale process, but by a little ingenuity, in substituting other syrups, such as capillaire, orange, cherry, &c., half a dozen more. It is really time to put a stop to the assumption of a new name to a process for every trifling variation that may be made. There are some places to which one may gain access by a dozen different routes, but that does not alter the *name of the place*; and we see no reason why the use of dirty water, instead of clean, should confer any honourable distinction.

The *Raspberry Process!!* (sweet designation!) is stated to be more simple than Fothergill's; but by the description given this is not the case—moreover, the assumption of plates prepared by the former being quite as sensitive as those by any of the existing keeping processes, cannot be proved, unless the writer has become sufficiently skilled in *all*, to ensure his working them under their most favourable circumstances, and to compare them carefully, a feat which we scarcely think he has had time for as yet at any rate.

We have a word or two to say to Mr. Frank Howard's paper, not that he will agree with us *of course*, but we know his good nature will rather cause him to laugh than to be angry at what we say. He asks various questions touching physiognomy, light and shade upon heads, folds of textile fabrics, &c., as to where the artist can find them delineated by photography for his use. Surely there are faces and fabrics in plenty to be had for asking; but what right has the artist to ask the photographer for these? If he wants them, let him become a photographer himself and produce them, or if he cannot do that, let him employ some one who can: there are many skilful photographers open to an engagement, and we do not see any reason why the time and talents of a photographer are not as valuable as those of any other artist. We feel as if we had "put our foot in it," and we sincerely trust that our good friend will give us the "dressing" we deserve; but if a gentleman asks questions, we suppose he wants to be answered.

We are somewhat amused at the remarks of a contemporary upon the *rationale* of the carbon printing processes, amongst them the allegation that it has been supposed that the change from solubility to insolubility of the mixture of gelatine and bichromate of potash is *gradual*, and hence the deficiency of half-tone. Of course these remarks are not directed against any observations of ours, our opinion being *exactly the reverse of this* as we have before expressed in these pages. It is precisely because we fear that there is no intermediate stage between solubility and insolubility, where the bi-chromates are employed, that we are not sanguine about any of the processes in which these salts form an integral part. We have been favoured by Mr. Wood of Edinburgh, with some specimens of Mr. McCraw's formula, and though the colour in one is not quite so blue as what we have before noticed, the half tones are very deficient—there is no detail in the shadows.

In a patent recently granted to Mr. W. E. Newton, for a method of employing photolithography, we find some attempt made to obviate this shortcoming of the chromic compound, by employing a stone previously prepared by "graining," as it is technically termed, but whether it is successful or not we have no means of judging, not having seen specimens. The failing noticed by us—want of half-tone—seems to be very generally admitted.

We regret very much to notice the prevailing tendency to secure patents for photographic improvements, or variations that are supposed to be such. We think this unwise as well as unjust, most of the *improvements* being suggested by results previously given to the world by others; and even if a patentee be legally entitled to the exclusive use of what he has nominally secured, we do not perceive how an infringment is to be detected much less guarded against. How many of the patents granted for improvements, in which bichromate of potash and organic matter are the agents employed, can by any possibility be good, we cannot make out; to us they appear all alike, and we confess we feel but little pity, when their holders get to loggerheads amongst one another.

We again present our readers with *eight* additional pages of matter, which we trust they will accept as an earnest of our intention to keep them *au fait* in all matters of interest connected with the art.

NORTH LONDON PHOTOGRAPHIC ASSOCIATION.

At an ordinary monthly meeting of this Society, held at Myddelton Hall, Islington, on the 24th November, 1858, Geo. Shadbolt, Esq., vice-president, in the chair (the minutes of the previous meeting having been read and confirmed), the following gentlemen were unanimously elected members—Messrs. M. Hannaford and L. Crowley.

The Chairman stated, that as Mr. Dawson would not be able to read his promised paper that evening, he would bring several subjects before the meeting for discussion.

The first was the dry process, recently published in *The Times*, by Messrs. Murray and Heath, called the "Raspberry-syrup process," which was considered a mere variety of, but inferior to, the oxymel process.

The second was an ink printing process, by Mr. McCraw. During the discussion which ensued, Mr. Hannaford exhibited some specimens, printed by an analogous method, the process of which he promised to explain at the next meeting. The proofs exhibited, were better in colour and half-tone, than any that had been seen previously produced by modifications of M. Sella's ink process.

The third was a recommendation to try Mr. Burnett's printing process by salts of uranium (as a substitute for bi-chromate of potash) with gelatine, which lead to a discussion; in which the Chairman communicated some singular phenomena he had observed when experimenting upon prot-iodide of mercury, at the suggestion of Mr. Warington, as a printing agent in photography.

The fourth was a system for the exchange of photographs, which had been successfully carried out at Liverpool, with a recommendation to the members to join the club, as the managers had informed the speaker that they had in hand a considerable number of proofs ready for immediate disposal.

The Chairman also exhibited a model of Skaife's patent shutters, for taking instantaneous pictures; and afterwards described a photographic wheelbarrow, contrived by Mr. Wm. Cook, which he had recently seen at Liverpool, and noticed how a similar idea had been suggested by Mr. Rejlander, but very differently carried out.

Notice was given, that at the next meeting on 29th December, an original paper of Dr. Hill Norris's would be read by Mr. Hislop, "*On the Dry Processes*, after which the meeting was adjourned.

FESTIVITIES IN CONNECTION WITH PHOTOGRAPHY AT LIVERPOOL.

On Thursday evening last (says the *Liverpool Albion* of the 22nd ult.) a number of the leading photographers of Liverpool and Birkenhead dined together at Anderson's Merchants' Dining-rooms, Castle Street, for the purpose of complimenting Mr. George Shadbolt, who was present at Liverpool, with the intention of reading a paper in the evening, before the scientific section of the Historic Society of Lancashire and Cheshire, at its usual place of meeting in St. George's Hall. The occasion was distinguished by greater local interest, from the circumstance that Mr. Shadbolt has, for some time, most satisfactorily discharged the duties of editor of the *Liverpool and Manchester Photographic Journal*, formerly the property of the Liverpool Photographic Society, by the leading spirits of which it was started, but which, some time ago, passed into the hands of the publisher, Mr. Greenwood. The chair was occupied by Mr. Corey, and the vice-chair by Mr. Bell. Among those present, we noticed the Rev. Mr. Banner, Dr. Thomson, Messrs. Chadburn, Frank Howard, Foard, Keith, Cook, Berry, Greenwood, &c."

Previous to the dinner, an interesting meeting of the photographers present was held in the ante-room, for the purpose of hearing papers read by Mr. Frank Howard, on "*Photography in connection with Art;*" by Mr. Berry, on "*The results of the experiments for testing the effects of the Sun's Rays on various coloured Glasses used in Operating Rooms;*" and by Mr. Foard, on "*Artistic Posé in Photographic Portraiture.*" Mr. Christopher Bell occupied the chair.

Mr. Frank Howard being called upon, read his paper (of which the following is an extract), on—

PHOTOGRAPHY IN CONNECTION WITH ART.

The author being an artist, whose interests have not been, as he imagines, affected by photography, excepting as regards its shortcomings, considers himself as peculiarly fitted to direct attention to the relations that should exist between photography and the Fine Arts.

Having asserted that photography has destroyed portrait painting, he asks, "Where are the illustrations of *natural physiognomy* so often demanded, or the studies of heads in various positions and lights, which would be of service to the historical painter? Where the details of natural history, or the characteristic foldings of textile fabrics?"

The Architectural Society is condemned as having frittered away its efforts on "pretty little bits," and painters for having imitated the defects of photography. He states, that those who know *least* of a subject are considered the best judges, because they are not *prejudiced* by any instruction.

The public regard photographs as the reflection of nature; the artist states, that nature (meaning a totally different thing) is *his* model, hence the latter takes refuge under unmeaning terms, such as *taste* and genius.

The stereoscope is looked upon as having demonstrated that the science of perspective is available only in the land of the cyclops.

The author then alluded to the supposed success of Mr. Sang in producing stereographs from flat surfaces, as being of course *impossible*, and states, that "the artist has a right to look to photography for the solution of optical questions relating to his art." He would have photographers keep themselves to science and fact alone, and not try to attempt art—and regards even the temporary success of photographic portraiture as referable solely to cheapness, and altogether a mistake as regards true taste.

Mr. Berry then read a report—on

THE RESULTS OF EXPERIMENTS FOR TESTING THE EFFECTS OF THE SUN'S RAYS ON VARIOUS COLOURED GLASSES USED IN OPERATING ROOMS.

[As Mr. Berry's remarks are given in greater detail at page 299, in another paper on the same subject read by him at a subsequent meeting of the Historic Society of Lancashire and Cheshire, we only, in this place, give the substance of his remarks.]

Mr. Berry reported the results of experiments undertaken by a Committee of Liverpool photographers, to determine the best qualities of glass to be used for photographic operating rooms, and illustrated the same by exhibiting the actinic action upon chlorized and iodized silver papers, when covered by the respective exposed and unexposed specimens. Pieces of crystal glass, also of Chance's common sheet and blue glasses, and Pilkington's sheet and blue glasses were cut in two, a portion of each being carefully preserved in darkness, whilst the corresponding portions were exposed to light on the top of St. George's Hall for several months. The whole of the various pieces, whether exposed or unexposed, were placed upon a single sheet of iodized, and again upon chlorized sensitive paper, and the light allowed to act through them, until the uncovered parts of the paper were affected to blackness, the results being, that the crystal glass lost transmissive power for actinic rays *considerably*. Chance's common sheet glass had also changed, but Pilkington's sheet glass had remained permanently the same as before exposure, whilst Chance's blue glass remained unaffected, but Pilkington's blue glass changed. The results were not regarded as conclusive, and the production of glass that is not changeable, and yet transmits the largest amount of actinic rays, is still a *desideratum*.

In reply to the Chairman, Mr. Berry said, the variations of effect by the sun's rays were very great, although all the specimens, with the exception of one, had been exposed the same length of time.

The Chairman: Then the results show that all the blues are inferior to the white glass.

Mr. J. A. Forrest said that there were three elements in glass which affected its colour—lead, manganese, and arsenic; and if manufacturers could dispense with them and render glass permanent, it would be a great advantage. The advantage of blue glass was, that the cobalt with which it was tinted rendered it permanent, as was shown by blue glass in the windows of cathedrals, which had not been at all changed by the action of light.

Mr. Berry said he did not wish these experiments to be accepted as conclusive, because different variations of light produced variations in the transmissive power of the glasses. The problem was one which yet required solution; but if glassmakers could give them a colourless glass that would be permanent, they would have all they could wish for as photographers. The blues were much worse than he thought they would be, so far as actinic transmissive power was concerned.

Mr. **Greenwood** remarked that at one time they thought blue would be the better colour.

After some further conversation the subject closed, and

Mr. **Foard** proceeded to read his paper on—

ARTISTIC POSE IN PHOTOGRAPHIC PORTRAITURE.

Photography may be divided into three branches or estates—the scientific, the artistic, and the mechanical;—into three parts—all alike necessary to its perfection, each incomplete in itself, and in this respect analogous with the three primary rays and powers resident in light, the very element on which all photography depends, and of which it is composed:—the whole forming a very pretty moral for any modern Pythagorean, speculative on the influence of numbers and of triune classification. The scientific branch of photography is based on chemistry and optics—the sciences which treat of the constituent elements of the various materials employed—the changes, chemical and molecular, induced in their nature by decomposition and re-arrangement, under the influences to which they are exposed, and the no less exact and determinate results, which ensue by certain unalterable results with known properties of matter, and by the laws of vision.

It is not too much to say, that without some little attention or knowledge, theoretical or practical, to each of these sciences, no man can be a photographer. On the mechanical phase of photography depends the excellence of the mechanical result. The first branch may be said to be more purely theoretical—the latter practical. The third or artistic branch of photography deals with each of the other estates, stands as mediator between the two, and is, in some sort, influenced by both. It thus still further illustrates the analogy between light and photography. But while the scientific and mechanical divisions are, in their nature, exact, determinate, unalterable, the artistic is variable, indeterminate, and altogether dependent on the immediate conditions of action and the emergencies of the instant; and it is on this branch, and by this very inexactitude of result, that photography claims to be an art, and its operator demands recognition as an artist.

Now, the primary idea of an Art is something that is not dependent on rules — something which, like poetry, cannot be taught—that is born, not made, and which originates in the mind of the artist. Something which is generated, conceived, and Minerva-like, struck int life from the brain of man. Art is, in a certain sense, skill, knack, power. But it is much more easy to point out what it does than what it is, or how it accomplishes its ends. It implies not merely knowledge, as derived from examples and precedent, but that species of wisdom which is in itself creative and suggestive. Every phase of applied photography more or less demands, and is made valuable or otherwise, by art. Selection, said Fuseli, is the invention of the landscape painter; and selection is the art of the photographer. Twenty persons may photograph the same scene—each of the twenty may choose a different aspect—and each of these productions has, and ever will have, a distinct value and merit, if it illustrate the mind of its author, and is not a merely accidental or random shot. Of these, that which is dictated by the most refined motives of arrangement, of combined knowledge and taste will be the most artistic — the most valuable. In portraiture, however, art has a wider scope. It has not only to select, but to arrange and combine. It makes its own effects. It must control its lights and shadows—the position of its subject—in deference to a general perfection. It is limited by mechanical and optical restrictions; but art is to triumph over them—work as if they were not—and last and not least achievement of all, conceal itself.

It is art which determines the view of the face, the position of the body, the head, the hands, the lights and shades, with reference to each other, the general character of the sitter, or the accidental association to be preserved. It is the success with which these considerations are treated that gives worth to the picture; and although the artist has no rules in this respect to assist him, and his taste must ever depend, more or less on his own resources, he is still not without guides in the path before him. Art has its precedents as the law hath—the precedents which have become law—founded on that uniformly acknowledged reason that the mind of man runneth not back to the contrary. It demands knowledge and culture. In the works of great painters, in the examples of what has been accomplished by the greatest minds of all ages, must the photographer seek and find his rules of action, if not, how and when to act? He must go to the artist's school. From the great Velasquez or Vandyke he must learn the simplicity, the massive dignity of ease and grace, conferred by attention to posé—to the effects of broad lights and shades, and modified gradations of colour. He may trace in their works the simplicity which snatches a grace well nigh beyond the reach of art—the simplicity which is akin to nature's own. From Raeburn he may learn what he alone of portrait painters knew or knew best, the value of detailed forms in the preservation of the character of the face—in the masterly contrast of light and shade—and the advantages, nay, the necessity, of arranged position in the development of the character of the sitter. From Sir Thomas Lawrence he may learn the great art of making his sitters gentlemen—of making all men dignified and noble—all women graceful:—*learn* the art if he cannot practice it.

In conclusion, I would say that the public are too apt to suppose that there is no scope for artistic influence in photography — that all photographs are the same, and must be like each other. There can be no greater mistake. By art alone photographs can be made pleasing and attractive. In art alone they will attain a pictorial interest. By art alone they must all ultimately be judged. The stiff, ungainly, awkward position—the false drawing—the harsh and violent shadows, and transitions from white to black—the enlarged hands—will be the destruction and undoing of their disseminators.

It is only, or chiefly, however, from and by photographers themselves that reform must come. Leman Blanchard's testimony, that the thing the great world knows the least about, is art, is substantially true. There are some who understand what it is but the many do not. Of this there is sufficient evidence. There is a large class of persons as ignorant as Catlin's red Indian, who will not have any shadow in a face, because it makes it only half a face, as there are many who will not allow a hand to appear in their photograph unless its fingers are arranged in straight lines—who would consider a side or three-quarter faced portrait as an infraction of their rights and an attempted fraud—who would object to less than a full face, full figure, and full hands, as an invasion of property that ought to be punished at common law — who think the closing of a hand, or the withdrawal of the constitutional photographic table an undue attempt to take advantage by the operator; and who believe, that the one hand in the waistcoat hole and the other at the knee, with a front face and figure, the perfection of manly portraiture. To correct this I look forward to the day when photography shall have its guild, its academy and school, and honorable diploma; for I am sure, while I see as I do, even in the metropolis, mere quacks, advertisers, and charlatans, succeeding beyond the most painstaking, conscientious, and artistic photographer, I feel satisfied, that a stamp from the photographers themselves, who do understand, will be the only ultimate security for the public who do not.

Letters were then read from Manchester friends, expressing their regret that they were unable to attend.

"At the conclusion of the papers, the company were ushered into an adjoining room, where an admirable and *recherché* dinner was provided. Mr. Charles Corey occupied the chair, and the vice-chair was filled by Mr. C. Bell. Grace was said by the Rev. Mr. Banner. When ample justice had been done to the excellent repast, and after the loyal toasts had been duly honoured, the Chairman proposed Mr. Shadbolt's health in terms too complimentary for us to publish, to which Mr. Shadbolt replied in a few appropriate remarks.

The Vice-chairman then proposed "Prosperity to the London Photographic Society," for which Mr. Shadbolt returned thanks, and in conclusion proposed "Prosperity to the "Liverpool Photographers, to which Mr. Keith briefly responded.

The Chairman then announced, that the festive proceedings were at an end, and the company again returned to the ante-room, where several interesting specimens of photographic art were submitted for inspection, and an agreeable and animating conversation kept up for nearly an hour.

Mr. Cook exhibited a photographic wheelbarrow, and Messrs. Murray and Heath a portable tent for operating in the open air. The peculiarities of the latter consist in its being easily set up, firm and roomy to work in, and is constructed upon the principle of a series of triangles, formed by the side supports opening out like the letter X, thus combining strength with lightness. It is the contrivance of Mr. Smartt, a gentleman connected with the firm. There was also exhibited by the same firm Marriott's ingenious stereoscopic camera, containing twelve plates in three double backs, and capable of being employed as a twin lens camera, or for two single pictures. The new form of racked boxes for the prepared plates, by which the extreme edges only of the films are in contact with the racks, accompanied the preceding.

Mr. Francis, of Great Russell Street, sent for examination a specimen of his economical printing frames. These consist of a framework of deal, having an opening about ¼ of an inch less in dimensions than the negatives, to be used therewith, and a small *rabbet* of sufficient depth to receive the glass. They are furnished with the usual hinged backs and screws.

Mr. Francis also sent some stereographs, printed without silver salts, but they were regarded only as experiments, and resembled in appearance those produced by Mr. McCraw, M. Sella, and others.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

At the meeting of the Scientific Section of this Society, held at St. George's Hall, Liverpool, on the evening of Thursday, the 18th ult., there was a very full attendance of members.

The chair was occupied by Mr. Hartnup, Astronomer at the Liverpool Observatory.

After the usual preliminary, Mr. Shadbolt read the following paper, which he illustrated by the aid of the black-board—

ON SUGGESTIONS FOR THE IMPROVEMENT OF LANDSCAPE PHOTOGRAPHY, WITH HINTS FOR THE ENLARGEMENT OF NEGATIVES.

In ascending an eminence of great altitude, we often pause on our upward journey, for the purpose of taking a glance at the path we have already traversed, the more especially if it be one that we expect it may frequently be our lot to pass over, and this with an eye to the possibility of finding a shorter or more convenient route.

The progress made in the practice of photography since the year of the Great Industrial Exhibition (1851) has been so rapid, and the various steps have been taken with such gigantic strides, that it becomes doubly important to indulge in these occasional pauses for retrospective consideration, in order that we may not be hurried away into directions where our strength is wasted without approaching any nearer to our journey's end.

The nearer that we attain towards perfection in constructive science or in matters of art, the greater is the difficulty of effecting an improvement: and when accomplished, the expenditure of labour materially exceeds in proportion that requisite for the earlier steps.

The difference between the first rude outline of the human form, and the shapeless mass of clay out of which it has been fashioned, is far more perceptible, especially to the uneducated eye, than that between the finished statue of an accomplished student and the finest productions of Praxiteles: yet the labour of a few minutes' duration would suffice to convert the former, whilst the latter, if possible, would require many days of patient toil.

All persons are more or less liable (photographers more especially) to push a principle beyond reasonable bounds, forgetful of the oft-repeated saying—"there is no rule without an exception:" hence it not unfrequently arises, that having taken up some peculiar crotchet, or entered upon some particular track (good it may be, when kept within due bounds), not content with its legitimate application, we pursue it in season and out of season, till like some follower of "Will-o'-the-wisp," we are left, at last, floundering about in the mire.

Let us now take a glance at the history of landscape photography, and endeavour to see whether from the past we cannot learn how to shape our course for the future.

In the early days of our art, the calotype process was the only one applied to the purpose under consideration; but the comparatively rapid deterioration of the sensitive sheets of paper led to the introduction of the waxed paper process, by which alteration it was found the paper would keep without being spoiled for a considerably increased duration of time. This advantage was not however acquired without a corresponding sacrifice: the time of exposure required in the camera was increased in exact proportion, and in cases of failure there was also the loss of so much additional labour.

The use of albumen upon glass was, very early after its introduction, applied to taking views, and the incomparably superior results as regarded definition, more particularly with reference to the delicate minutiæ, together with its property of remaining a long time sensitive, rendered its use highly desirable; but alas! these advantages had to be paid for—it was still more slowly impressible than even the waxed paper, while the preparation of the plates presented formidable difficulties to all, to the amateur almost insurmountable ones.

The time requisite for exposure in the camera precluded the possibility of introducing into our pictures any of those objects which go towards making up the idea of activity, such as human beings, domestic animals, &c., because it is next to impossible to keep them in a sufficiently perfect state of repose for a time protracted enough to allow of their images being impressed upon the plates or paper, whilst a very trifling movement spoils the whole affair. The idea of depicting objects in actual motion was then regarded as chimerical.

As soon however as the collodion process was brought forward, a new era in landscape photography commenced; we could occasionally then introduce a figure or two, somewhat rigid in appearance it must be owned, and not over picturesque in position or attitude, still it was justly felt to be a step in advance.

But our earlier collodion negatives were of small size, and an increase in their dimensions was imperatively demanded by the public; our resources kept pace with these demands, and as our chemicals got more and more sensitive, and our plates consequently more under control, a corresponding expansion in bulk took place. This expansion in bulk of course inflicted its penalty, and a pretty heavy one it was in more senses than one, for not only did it involve the transport from place to place of large masses of chemicals, and still larger quantities of water, but it entailed also the addition of a somewhat sizeable dark tent to be carried, in which to conduct our operations. This burden was soon found to be more than the generality of photographers could bear, although they were compelled perforce to perform a portion of the work of its transportation by deputy, and various schemes and contrivances were sought for and resorted to, in order to allow of part of the manipulations being carried on at home. The latest results of these efforts have been the various dry collodion processes now so much practised, all more or less accomplishing the desired object; but here again our old adversary, *increased exposure in the camera*, partly neutralises the advantages aimed at, though it must be allowed that he is somewhat shorn of his former strength.

The comparative comfort to amateurs, of always having at hand a few plates to "fire off" as opportunity or caprice may dictate, without the drag of the old incumbrances, has caused the dry collodion processes to acquire an unusual amount of popularity, and consequently a tendency has arisen rather to endeavour to compel circumstances to bend to a process, than to make the process adapt itself to the circumstances that naturally occur.

The ill effects that might have been anticipated to happen from this course of proceeding, are precisely those which have arisen, that is, a partial return towards that *absence of life*, forming so marked a feature in our earlier photographs, although the definition is now all that can be desired. Still with a process that requires an exposure, to be measured even by minutes, many of the most exquisite effects of nature must of necessity be lost, the passing gleams of light and shade produced by the transit of a fleecy cloud, the waving of a corn field, the graceful bending beneath the influence of a gentle breeze or heavy gale of the lissome stems of some of our vegetable beauties, the ripple on the water, &c., are a few of the points that I might instance as escaping the grasp of the ordinary photographer.

May it then not be possible to comply with all the requirements to the introduction of these and such like effects, and yet obtain pictures that are more than microscopic in proportion? Surely there is a direction in which our efforts might reasonably be expected to prove effective, and the word I have almost accidently employed, is itself suggestive of the course we might attempt to pursue. The word to which I make allusion is *microscopic*, the course indicated, is to take small sized instantaneous pictures, and then enlarge them—not a very novel idea certainly—yet I think there is now a chance of its being more perfectly carried out than has hitherto been the case, partly from a better acquaintance with all the requirements involved in its accomplishment, and partly from our now possessing certain means at disposal which have hitherto been wholly or partially deficient. Let us then inquire what would be the probable advantages and disadvantages of this course of proceeding, and endeavour, if possible, to strike a just balance, bearing in mind, that as we must always expect to part with a *quid pro quo*, we must not be astonished or dismayed, if we find our labour increased in the aggregate, in order to produce superior results, particularly if we desire at the same time to economise labour at certain points of the operations.

If we set out by defining explicitly that which it is our desire to attain, then consider how far these desiderata are compatible with one another, we shall be in a position to decide upon the shortest method of accomplishing our object.

We desire, then—

Pictures of from ten inches by eight inches to twenty-two inches by seventeen inches of dimensions.

To be well defined, both at the edges and centre of the field.

To include a considerable *angle of vision*.

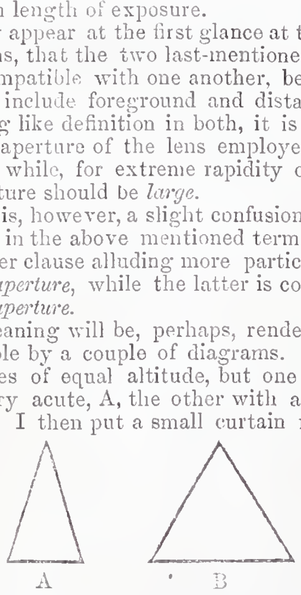
To allow of the distance and foreground, bearing a relative portion of distinctness, and in order to include living, and perhaps moving objects.

To be impressed in the first place by a minimum length of exposure.

It may appear at the first glance at the above conditions, that the two last-mentioned clauses are incompatible with one another, because, in order to include foreground and distance with any thing like definition in both, it is requisite that the aperture of the lens employed should be *small*, while, for extreme rapidity of action, the aperture should be *large*.

There is, however, a slight confusion of ideas involved in the above mentioned term *aperture*, the former clause alluding more particularly to *absolute aperture*, while the latter is confined to *angular aperture*.

My meaning will be, perhaps, rendered more intelligible by a couple of diagrams. If I take two cones of equal altitude, but one with its apex very acute, A, the other with an obtuse apex, B. I then put a small curtain ring over the apices, first of one and then of the other, it is manifest that if a section of either cone were made where the ring would rest, the area of the sections would be in both cases the *same*, though the altitudes of the pieces so removed would differ. The area of the sections represent *absolute aperture*, the pieces removed *angular aperture*; and it is upon the latter that *cæteris paribus*, rapidity of action depends: in other words, upon the greater or lesser inclination towards one another of the extreme rays of the pencil of light transmitted.



It will then, of course, be at once apparent, that the *angular aperture* is not defined by the *absolute aperture*, but by the proportion borne by the latter to the focal length of the lens employed.

[*The concluding portion of this paper will be given in our next number.*]

Mr. J. T. Towson, Marine Examiner at the Sailors' Home, observed that in the early days of photography, say in 1838-39, when he and four others (Sir John Herschell, Mr. John, now Sir John Lubbock, Mr. Fox Talbot, and his friend Mr. Robert Hunt), were the only followers of the science in England, they could do nothing in less than fifteen or twenty minutes in the camera. His friend, Mr. Robert Hunt, and himself were unable to succeed with any of the processes while using achromatic lenses, on account of their slowness. He wrote a paper, which appeared in the *London and Edinburgh Philosophical Magazine* for November, 1839, on the proper way to focus for daguerreotyping with simple lenses, in which he pointed out the difficulty of using the common achromatic lens, the luminous focus being different from the chemical. The plan of using the simple lens for taking portraits from life had been adopted for several years in America, while the achromatic lens was used in this country. They had the thinnest glass they could use so as not to hinder the passage of the rays.

Mr. Shadbolt said the questions raised by Mr. Towson were of considerable interest to photographers. They had already been considered, and he thought he could answer them *seriatim* by giving reasons for still using the achromatic lens. It is perfectly clear that the amount of dispersion of the rays which takes place in thick masses is much greater than in thin glass; but there is a still more serious objection to the use of achromatic instead of a thin single glass, and that is the necessity of having four surfaces of reflection instead of two. Of late years the objection had been obviated by cementing the two inner surfaces together. With regard to the simple lens, he said it might be successful in taking portraits in a room where the distance of the sitter is defined; but when it is desired to take landscapes, where the objects are at various distances, the correction from the luminous to the chemical focus requires a calculation which renders it difficult to carry the principle out, the use of the achromatic lens therefore becomes desirable, especially as we have a more sensitive media, and time is of little value as compared with the earlier periods of photography.

Dr. Hume said they would all agree in the expression of a hearty vote of thanks to Mr. Shadbolt. He (Dr. Hume) had been particularly interested in watching the progress made by this interesting and beautiful science. He remembered while in conversation, on one occasion, with Mr. Skaife, having stated that he should not be satisfied until the practice of photography became so instantaneous that it would take the smoke as it rose, and the wave in the act of curling before it sank again. Mr. Skaife laughed and shook his head: but soon afterwards he (Dr. Hume) saw in *The Times* newspaper that his anticipations had been achieved, and a week or two afterwards he heard of the shell being photographed in its flight from the mortar through the air.

Mr. BELL said he had been using a simple lens for some time. It occurred to him that the density of rock crystal was such that it was possible to construct a lens which should have at the same time the actinic and visual *foci* coincident. He consulted with Mr. Chadburn, who, after some experiments, had prepared several, which were then on the table. The *foci* were coincident. The glasses were very thin, and the time of exposure, with wet collodion, was two or three seconds. Could the achromatic lens beat that?

Mr. SHADBOLT differed with Mr. Bell with regard to the agreement of the *foci*. In one single refractive substance it is impossible to have the actinic and visual *foci* coincident because of the accompanying dispersion. There might be so little that in practice it might be disregarded, though he thought he could detect the difference with a microscope.

After some further conversation, the vote of thanks to Mr. Shadbolt was carried by acclamation, and he briefly responded.

A collection of photographs from oil paintings, taken in the Manchester Exhibition, by Caldesi and Montecchi, were exhibited by Mr. J. Newton. A collection of photographs, by Rejlander, including the *Two Ways of Life*, was exhibited by Mr. Greenwood, and an admirable view of the Leeds Town Hall, by Mr. C. H. Chadburn.

MEETING OF THURSDAY, NOV. 25.

Another meeting of the Society was held on Thursday last, the 25th ultimo, the Rev. H. H. HIGGINS in the chair.

Mr. G. R. BERRY read the following interesting paper—

ON THE RESULTS OF EXPERIMENTS ON THE SPECIMENS OF PHOTOGRAPHIC GLASS SUBMITTED TO THE SPECIAL COMMITTEE OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY FOR EXAMINATION.

Various discussions and controversies having arisen during 1856-57, as to the most available quality of glass for covering operating rooms for photographers, it was determined by the Liverpool Photographic Society to appoint a committee, consisting of Dr. Ayrton, Mr. Glover, and myself, empowering us to apply for and receive any specimens of glass by various manufacturers, supposed by them to be suitable for the purpose; to have these fitted into a sash and exposed to the full blaze of the summer's sun on the top of St. George's Hall, duplicate pieces of each specimen being preserved *unexposed* for the purpose of comparison at the expiration of the appointed period.

At the beginning of the present month the frame of glass was removed from St. George's Hall, and portions of each, together with the unexposed duplicates, were taken by us for the purpose of submitting them to such tests as we might devise, to ascertain if any detrimental change had been occasioned by the prolonged solar influence.

It may, perhaps, not be out of place, before proceeding further, to explain that the chemical changes evolved by our photogenic processes are so subtle in their nature that it is only photographic experience that has enabled us to appreciate and detect them. The accurately poised balance of the analyst is itself found useless, so imponderable are the alterations produced by the decompositions or recombinations of our various preparations in presence of the mysterious principle actinism, and the more extended our researches become, so much the more do we detect evidence of the all-pervading influence of light upon matter, and as in the case more immediately before us, we shall find that continued action of light upon the hard transparent substance of glass itself, is capable of producing in many cases chemical changes visible to the eye, and in others, although inappreciable to our ordinary vision, it is at once made evident by the effect produced upon our sensitive media when light is transmitted through it.

An experiment illustrative of the delicacy of our photogenic re-actions will perhaps be acceptable before entering on our subject.

In the ordinary collodion process we have a film of pyroxyline imbued with iodide of silver, with excess of nitrate of silver, the faintest gleam of light effects such a molecular change, that on the application of a reducing or developing agent, as it is termed, a decomposition of the silver salts is effected, and the image evolved is metallic silver.

But if, as in the preceding experiment, we expose to light and apply the reducing agent, so that the metallic image appears, and again expose to the luminous influence, a reversed action takes place, the solid metal is removed, and where the densest portions of the negative photograph previously appeared the highest lights of a transparent positive subsequently result.

It will be obvious that, to the photographer working with such unstable preparations, it is a matter of infinite moment that the glass roof of the studio should transmit as many of the active rays of light as possible, and that it should not deteriorate or vary by the lapse of time, for not only would the amount of exposure required for producing a photograph be increased, but another element of uncertainty would be added to a process already sufficiently burdened with them.

Experience has demonstrated that a falling off in the rapidity of his impression does occur from this cause, although no perceptible difference may be observed in the colour of the glass.

The various specimens of glass given us to test were as follow:—

Crystal or colourless glass.
Blue glass, by two manufacturers, labelled P. No. 3.—C. No. 4.
Sheet glass.—P. No. 8.—C. No. 1.

The first essays were to transmit artificial light through an ordinary enlarging apparatus with a collodion negative in focus, and to place layers of the different specimens between the source of light and the condenser. Several series of tests were thus gone through; and although in every instance a difference could be detected by ourselves, we nevertheless felt that there existed a very plausible objection to the accuracy of our results might be raised from the difficulty of preserving the source of light always identical in quantity and intensity.

It was then determined that the various pieces should be placed upon one piece of sensitive paper, and the whole exposed to ordinary diffused light; the results became at once apparent; and as the whole piece of paper was sensitized at one and the same time, it must have been equally sensitive over the whole surface.

On the table there are some of these tests, with the number and cypher of the glass attached to each. The results are very remarkable. On the longest slip the glasses are arranged in the following order, from left to right—

Crystal unexposed. Crystal exposed.
Blue C No. 4 unexposed. C No. 4 exposed.
P No. 3 unexposed. P No. 3 exposed.
Sheet glass P No. 8 exposed. C No. 1 exposed.

The unexposed crystal is seen to be by very far the most transmissive, but its exposed counterpart *has much changed for the worse.*

Blue C No. 4, although far less rapid, is at least not deteriorated by exposure; if anything, it is rather more sensitive.

Blue P No. 3 nearly equal to C No. 4; prior to exposure is *rendered far worse by that process.*

Sheet glass:—

P No. 8, exposed, is about equal to blue C No. 4.

C No. 1, exposed, has changed, and is about equal to blue No. 3 exposed.

It might fairly be objected that, although these differences are apparent on the specimen of paper referred to, yet that paper being made sensitive by chloride of silver, the same result might not be obtained with an iodized surface as collodion, &c. I therefore prepared some paper by the waxed paper process, the active elements there being of course iodide and bromide of silver; on exposure and development I found precisely the same result as before, as may be perceived by the specimen before you.

From the foregoing I may make the following summary:—

White glass would be infinitely the best if it did not change. Some blue glass is constant, other is not, and the best not more sensitive than some specimens of ordinary sheet glass, as instance P No. 8.

The manufacturers of glass have therefore the problem to solve — Is it possible to produce colourless glass unchangeable by light or age, and at a moderate cost?

Mr. Berry having exhibited a variety of sheets, showing the different results produced by the various qualities of glass on the paper,

A **Member** observed, that the crystal glass always changed to a reddish-brown tint.

The **Chairman** stated, that he had had many opportunities of visiting glass works, and he had learned that the peculiar pink tinted glass, which was to be seen very often in windows, had been originally pure white, but had changed colour through the quantity of metallic oxide used in its manufacture. It was chiefly of French make and was beautifully white at first.

Mr. **Berry** stated, that he was not aware who were the manufacturers of the various glasses that had been tested.

Mr. **Sansom** said that Messrs. Smith & Beck had apprised him of the great difficulty they had experienced in obtaining pure glass for microscopic eye-pieces. They now obtained it all from Switzerland.

The **Chairman** felt satisfied that nothing but long experience and careful study would enable makers to produce pure glass, for he knew that even when several furnaces were charged the same they would vary considerably in their results.

Mr. **Bell** thought the great heat the workmen were subject to prevented them from producing at all times the same effect with the same materials. He did not think the investigation would be productive of any good, for it was evident that the commonest was the best and cheapest.

Mr. **Berry**: The whitest glass changes the most, but even then it is far superior to any other at present submitted.

Mr. T. Sansom exhibited a micro-photograph of Paul Delaroche's picture of *Napoleon crossing the Alps;* also one of the tablets to the memory of Theodore Paleologus, the last descendent of the Christian Emperors of Greece, in Landulph Church, Cornwall.

ROYAL PHOTOGRAPHIC SOCIETY OF SCOTLAND.

The first meeting of this Society, for the season, was held in George Street Hall, Edinburgh, on Tuesday evening, the 9th instant, Mr. **Scott Elliot**, of Arkleton, Dumfriesshire, in the chair.

There were no papers read, and the business was entirely conversational.

The **Chairman** stated that they had secured a room at Mr. D. Hay's establishment, where their Annual Exhibition would be opened in the beginning of Dec., and he hoped they would be able to get a sufficient number of subjects to fill the room. Since the last meeting (he continued), the Society had sustained a great loss in the death of one of its most distinguished members, Mr. Ivan Szabo, than whom no man had stood higher as a photographer in Edinburgh. He thought the meeting should record its deep regret and sympathy on this account; and he felt sure that those who were present would warmly respond to his suggestion.

The **Secretary** (Mr. Kinnear) begged leave to read a letter in connection with Mr. Szabo's death. It stated that a large number of negatives and positives were still on hand, the property of the deceased gentleman, and his executors wished to dispose of them to parties who might feel an interest in them. The letter was signed by Mr. Henry Buchan, S.S.C. He (Mr. Kinnear) might also mention that, at Mr. Szabo's funeral, he heard it was proposed, by his more intimate friends, to raise some slight memorial to his memory, to be erected in the Grange Cemetery. He had put himself in communication with Mr. Harrison, one of the executors, who said the funds raised would probably be very limited. Now, he assumed that there were many gentlemen connected with the Society who would desire to contribute, and, with a view to giving them the opportunity, he had ventured to introduce the subject. He had communicated with Sir David Brewster, and with Mr. Ross, the vice-president of the Society, on the subject; but Sir David, whilst cordially concurring in the movement, regretted his inability to take any active part in it. He (the Secretary) did not propose that any part of the Society's funds should be devoted to the purpose, but that those members who had known Mr. Szabo, and who valued him as a man and as a photographer, should each give some trifle towards the fund. About £5 had already been received.

The subscription list was then handed round, and nearly all in the room appended their names.

The SECRETARY then said, that the Society was probably aware, that a new process of printing had been discovered by Mr. Pouncey, which was said to be perfectly permanent. He had got several of his prints, as no one there had seen them, except the very earliest impressions. The day was a very bad one in July when they were taken.

The prints were handed round, and elicited expressions of praise, the universal opinion being that they were excellently treated.

It was stated that the fund which was being collected by Mr. Sutton, for Mr. Pouncey, viz., £100—was mostly subscribed; and as only £40 more was required, there would be an opportunity open for any of the members who wished to subscribe to do so.

Mr. Sang sent for exhibition some of his new stereographs, from the flat surface of prints out of the *Illustrated London News*. They were arranged so as to suit the stereoscope. The pictures were favourably regarded.

Mr. Colin Sinclair also sent some new stereographs, which had a very peculiar effect in the stereoscope.

Mr. MOFFAT called the attention of the Society to a small picture (a photograph from a large drawing), done by the usual process of lithography, but upon a principle which was at present a secret. It would be all the better understood, however, if the members would each inspect it closely. It was taken from an "ordinary print," and was similar to Mr. Sang's; but he understood the process was not that of cutting out the various figures, and placing them in their proper positions, but it was on a scientific principle, which, of course, he was not at liberty to explain just then. He undertook to exhibit it, but the inventor must explain it.

The specimen having been carefully examined,

The CHAIRMAN drew attention to a newly-invented stereoscopic cabinet, called "Spiers' improved stèreoscopic cabinet," which stood on the table. He believed it was the first specimen brought into Edinburgh. It was extremely simple in its construction; but at first, the mechanism would strike one as being complicated. It held a large number of slides—150, which could be placed in it; and fifty could be shown, in rapid succession, one after another.

Mr. TAYLOR (of Messrs. Lennie's), Prince's Street, explained the construction of the cabinet, which was about eighteen inches long by twelve inches deep, the cost only £7. There were drawers for holding the slides which were arranged in twos, with boards between. By pulling a knob, and pressing down a handle or lever, the slides were bodily raised to the focus, one after another, until the whole fifty were exhausted.

The inspection was minutely inspected, and the members expressed a high opinion of its merits; after which the business terminated.

A MODIFIED OXYMEL PROCESS.

By A. Whitham.

HAVING been dabbling in photography for the last five years, I may venture to say that I have had some experience; and being a constant reader of Photographic Journals, I have noticed various processes recommended for obtaining photographs with dry collodion plates. I have tried various dry processes, amongst the rest I may mention Bland and Long's, Fothergill's, Cox's and the oxymel processes; none of these, I think, possess all the properties for which they are recommended by their admirers, nevertheless I have obtained good photographs from some of them. The principal failing in the above processes being the length of exposure required in the camera, the length of development, blistering, and a great chance of removing the collodion film by the subsequent washings. I think, however, I have managed to modify the oxymel dry process, so that it cannot fail to satisfy the most exacting critic, being simple, easily prepared, and giving very decided results. The plan I adopt is this:—To any dry powdery collodion, that is, collodion made from gun-cotton, that has been formed by acids at a high temperature, such as is recommended for other dry processes (the collodion being previously iodised with four grains iodide of potassium and two grains of iodide of cadmium to the ounce of collodion), I add half a grain of pure iodine: collodion thus prepared is ready for sensitizing in a forty-five grains to the ounce nitrate of silver bath. This is performed as in any other negative process. When the plate is taken from the bath, I stand it on several folds of blotting-paper and partially drain. But before this it must be washed with three waters thus:—I put the plates on the levelling-stand, or else I take it in my hand as if to pour the collodion on the plate; I let the first covering stand on the plate thoroughly covered for the space of half a minute, I then pour another two coverings of soft water over the plate, gently tilting the plate, and letting the water run into the corners, until all the greasy appearance has gone. This I consider plenty of washing, if it be carefully done and no trace of unevenness or greasiness appears. Having partially drained on blotting-paper, and prepared a preservative solution as follows,—to two ounces of best white sugar add two ounces of distilled water (hot) and one drachm of glacial acetic acid, dissolve and filter—I take as much of the preservative solution as will cover the plate; I find it better to pour the former over the partially drained plate, than to put the plate in a bath as recommended for the oxymel process. I pour the preservative solution over the plate as one does the developing solution, very gently three times, giving it about a minute each coating; the plate is now stored by to dry, after which it is ready for exposure.

The exposure varies, as with the other processes, according to light and subject; but with double combination half-plate lenses, with three-quarters-inch aperture, I this day, at three p.m., exposed a plate that had been prepared three weeks to a dark-coloured ancient stone building ninety seconds, and everything is beautifully brought out.

After exposure in the camera I immerse the plates in a weak alcoholic solution thus,—one ounce of alcohol, ten ounces of water—in a flat bottomed dish or tray; in this I let them remain until the preservative solution is dissolved. I then develop with —

Pyrogallic acid	2 grains.
Citric acid	1 grain.
Alcohol	1 drachm.
Distilled water	1 ounce.
Wood naptha	4 drops.

To a sufficient quantity of the above to cover the plate, add, just before using, a few drops of solution of nitrate of silver.

Plates, if properly prepared in this manner, will develop as quickly as the wet collodion process.

OPTICAL AND CHEMICAL EXTINCTION OF THE CHEMICAL RAYS.

(Concluded from 245.)

The loss of light by reflexion $a=0·811$ must be deducted from the incident light, and then the coefficient of extinction for chlorine is calculated.

From a series of determinations, the value of $\frac{a}{1}$, *i.e.* the depth of chlorine at 0°C. and 0·76 pressure, through which the light must pass in order to be reduced to $\frac{1}{10}$, is found to be, as a mean of five experiments, 171·7 mm. Another series of determinations were made with chlorine diluted with air, in order to prove experimentally that the absorbed light varies in the case of chlorine directly as the density. The quantity of chlorine contained was determined in each instance by a volumetric analysis. An average of six experiments gave a value for $\frac{1}{a} = 174·3$ mm. As a mean of these two series of experiments we have a value of 173·3.

"If the light is not consumed in the act of photochemical change, the coefficient just found must remain unaltered when the chlorine and hydrogen mixture is employed; if, on the contrary, light is not only lost by the optical extinction, but an amount of light vanishes proportional to the chemical action, experiment must give a larger value for the coefficient.

"In order to determine this important question we employed an apparatus (fully described in the paper), by means of which we could expose columns of the sensitive gas of various lengths, to a constant source of light. By determining the amount of action effected in these columns of varying length, we are able to obtain the value of the coefficient of extinction for the sensitive mixture. A series of experiments showed that when the light had passed through 234 millimetres of the sensitive mixture of chlorine and hydrogen at 0° and 0·76, it was reduced to $\frac{1}{10}$ of its original intensity. If, instead of hydrogen, we had diluted the chlorine with some other transparent but chemically inactive gas, the depth to which the rays must penetrate in order to be reduced to $\frac{1}{10}$ is according to the experiments with pure chlorine, 346 millimetres. Hence it is seen that for a given amount of chemical action effected in the mixture of chlorine and hydrogen, an equivalent quantity of light is absorbed. For we find that in the case of the standard chlorine and hydrogen mixture, where, together with the optical absorption, a chemical action of the light occurs, the value of the coefficient of extinction is 0·00427; whereas in the chlorine mixture of similar dilution, where the chemical action was absent, the coefficient is found to be 0·00289, or very much smaller.

"It appeared of great interest to repeat these experiments with rays from other luminous sources. For this purpose we employed the diffuse light of morning reflected from the zenith of a cloudless sky. The experiments gave a value of $\frac{1}{\beta}$ of 45·6 mm. for chlorine. That is, diffuse morning light was reduced to $\frac{1}{10}$ by passing through 45·6 millimetres of chlorine. A series of experiments made with our apparatus and the standard mixture gave a depth of 73·5 millimetres of chlorine and hydrogen before the light was reduced to $\frac{1}{10}$. From this it is seen that morning zenith light is much more easily absorbed by chlorine than lamp-light. Hence it was conjectured that the diffuse solar light might differ in its properties in this respect with the time of day or year. Experiment fully confirmed this supposition. Observations made with evening light proved that a depth of 19·7 mm. of chlorine was sufficient to reduce the light to $\frac{1}{10}$ of its original amount, and that 57·4 mm. of the standard mixture was required to effect the same end.

"The conclusion which we draw from all our observations is, that the coefficients of extinction of pure chlorine for chemical rays from various sources of light are very different. The depth to which such light must penetrate chlorine at 0° and 0·76, in order to be reduced to $\frac{1}{10}$ of its original intensity, is—

1. For a flame of coal-gas ....173·3 mm.
2. Reflected zenith light, morn... 45·6 mm.
3. Reflected zenith light, even.... 19·7 mm.

"Hence it is seen that the chemical rays reflected at different times and hours not only possess quantitative but also qualitative differences, similar to the various coloured rays of the visible spectrum. Had nature endowed us with the power of discriminating the chemical rays, as we do the visible ones, by impressions of varying colour, we should see the rosy tints of morning pass in the course of the day through all the gradations of colour until the warm evening ones at length succeed.

'A long and continued series of observations must be made before we are able to appreciate the influence which these qualitative differences in the chemical rays exert upon the photochemical phenomena of vegetation. That this influence must be of the greatest importance is evident from the varying effects produced in other photochemical processes by differences in the solar light. We need only mention in proof of this assertion, the fact, well known to all photographers, that the amount of light, photometrically speaking, gives no measure for the time in which a given photochemical effect is produced, and that a less intense morning light is always preferred for the preparation of pictures to a bright evening light."

THE QUEEN AND PHOTOGRAPHY.—"Nine or ten weeks ago," says the *Birmingham Journal*, "we described a series of unusually beautiful photographs which had accidentally come under our notice, the production of a local amateur, Mr. Breese, of Icknield-street West. Somehow or other our descriptive paragraph was seen by the Queen. The probability is that as the article was copied by one or two of the periodicals specially devoted to photography, and as rumours are afloat about Windsor that Royalty itself has been caught with its head under a photographer's 'hood,' one of these may have been the medium through which our opinion of Mr. Breese's works became known to the Queen. Be this as it may a fortnight afterwards that gentleman received a letter from Prince Albert's librarian to the following effect: 'The Queen having heard that you took some photographs on the occasion of her Majesty's visit to Birmingham, commands me to ask you whether those photographs are for sale, and if so, to request you to send me copies of them for her Majesty's collection.' Mr. Breese replied that he had never prepared any for sale, having studied photography solely as an interesting and valuable branch of science, and with a view to the perfection of the art; if, however, her Majesty would condescend to accept some specimens executed by his process, including those to which special reference was made, he should feel greatly honoured. The honour was at once accorded in the most gracious manner. The royal librarian, in acknowledging this note, said he had the Queen's commands to thank Mr. Breese for his kind offer, and to tell him that considering the photograhps were not to be had otherwise, she gratefully accepted that offer. As soon as circumstances admitted, eighteen or twenty exquisite little sun pictures on glass, nicely mounted for stereoscopic purposes, were forwarded to Windsor Castle. The collection contained four street views taken on the day the Queen visited Birmingham, and a variety of those rare transcripts of sea and cloudland, in the production of which Mr. Breese seems to excel all other photographers. During the present week he has received the following letter from Sir Chas. Phipps:

'Windsor Castle, November 22, 1858.

'Sir,—I have her Majesty's commands to return you her thanks for the very beautiful photographs which you have sent to her Majesty. The Queen has admired them very much; indeed some of them appear to be master-pieces of the wonderful art.—'I have the honour to be, Sir,

'Your obedient humble servant,

'To Charles Breese, Esq.' 'C. B. PHIPPS.'

The practical knowledge her Majesty has of the art renders her personal opinion of these photographs doubly valuable and gratifying."

CORRESPONDENCE.

☞ *All* EDITORIAL *Communications*, BOOKS FOR REVIEW, *&c., should be forwarded to the Editor*, GEORGE SHADBOLT, ESQ., 2, *Upper Hornsey Rise, N., Middlesex. All* ADVERTISEMENTS *and* LETTERS *on the* BUSINESS *of this* Journal, *should be addressed to the* PUBLISHER, 32, *Castle Street, Liverpool.*

ON COLLODIONISED PAPER AND URANIUM PRINTING.

To the Editor of the Liverpool and Manchester Photographic Journal.

SIR,—I believe that yourself, the editor of *Photographic Notes*, and Mr. Elliott, in his letter in the *London Photographic Journal*, to be all quite right about the promising aspects of alcoholic collodion. I tried it experimentally with some success very many months ago, and you will find it noticed in a note at page 128 of your May Journal, in connexion with the same property of not drying up too rapidly, with reference to which it is now principally brought forward, being there recommended particularly for paper-collodionising. I tried and recommended it both for positives and negatives, as also for use on plain paper and on papers previously prepared with solutions of wax, India rubber, gutta percha, gum dammar, and other varnishes.

This latter mode of paper-preparation with gutta-percha, now being re-introduced, like some other things, as a new French discovery or invention, you will find mentioned in my paper of 1855, as published in *Photographic Notes* of May, 1857, page 160, column 2. I tried and recommended it for both positives and negatives, both by itself and as a basis for collodion, albumen, and other films.

The sharpness and equality of thickness of picture we get on a film of this sort, properly supported, must be valuable for negatives, and a dry collodion process of this nature has great advantage in portability, as I have often insisted on, over one on glass. I could describe to you a very simple contrivance for holding this (applicable also to other papers) in the dark slide without any glass in front or behind, by two long spring clips extending the whole length with a spring also arranged so as to secure a sufficient tension of the paper and prevent all bagging. What I can hardly, however, help looking forward to, and one of the greatest possible advances in photography, will be the employment of these collodionised papers (on waxed, gutta percha, or otherwise prepared paper), *with the extension to them of Mr. Fothergill's new plan* of washing off the albumen, &c., so as to enable them to keep for negatives. We have thus almost all the advantages of the collodion process; for, even without transferring our film to glass, which might be done if wished, I do not think the paper, if rendered equably translucent before or after sensitising by the use of wax, wax solution, or other varnish, will much injure or diminish the delicacy of positives printed from it, the usual inferiority of positives from such negatives as compared with those printed from glass negatives, arising, I believe, not so much from unequal translucency as from the *unequal absorption of the chemicals* during the sensitising processes, caused by the want of uniformity in the texture and *density, porosity* and composition of the paper, and the consequent inequality of strength and of thickness of the negative with hardly any of its disadvantage, the only one, in fact, at all likely to trouble us being the uncertainty as to the exact time of exposure required if we do not develop on the spot.

I have been arranging with some of my photographic friends here about giving this plan a thorough trial, and we will let you know the results; but, in the mean time I would like to know what you think of it, and also whether you have tried Mr. Fothergill's process. I have a great notion of this collodionised paper or albumenised paper also in my rolling slide camera, which I hope soon to have an opportunity of shewing you when I come to the town; but even with the ordinary cameras and slides, its management would be perfectly simple and convenient.

URANIUM SALTS.

From the preface to a work lately published I find that the French *savants* have at length (discarding M. Nièpce's theories) adopted the *rationale* of the uranic and other photographic processes, and of the phenomena previously observed by me and described by M. Niepce, which I have always maintained and published in your Journal in my letter of March and the older paper which accompanied it. I have been also much amused by some of their manœuvres, on finding, as I always predicted they would find, that plain water was not enough for fixing, in so sedulously shying the ammonia which I *especially* recommended, and going back to the old condemned hyposulphite, though even there they can claim nothing new,* I having exhibited uranium prints fixed with hyposulphite also, both in 1855 and at an annual exhi, bition, and have those of 1855 still unfaded to produce-developed without and with the aid of a ferrous salt.

With the one exception of the mercurial toning bath, they have not found out one item, either in practice or yet in theory with regard to the uranium salts, which I had not previously discovered and communicated, and in theory they do not seem, at least *unanimously*, to have yet made up their minds as to what is *self-evident* or demonstrable, the fact of de-oxidation in consequence of the actinic exposure, just as in the case of the ferric salts, their constitutional analogues.

For use in the camera the great recommendation of the uranic salts is the giving of papers which keep sensive for months, or it may be years, instead of for hours only, furnishing us thus with something like a *calotype for warm climates* where ordinary calotype is not available. The acidulated ferrous-sulphate development of paper prepared with uranic salt (say 100 to 150 grains of nitrate, or a corresponding quantity of ammonio, oxalate, tartrate, formiate, or other salt to the ounce of water) is what I have principally recommended, but I tried also a great many mixtures, such as mixture of ferrous salts with the uranic, and mixtures of silver salts with the uranic in paper preparation; the recommendation of this latter plan being the economising of silver, and our being able to develope at once with the acidulated ferrous sulphate alone, instead of by ferrous and silver salts in mixture or in two successive baths; and the objection to it being the risk of the mixed papers not keeping so well. I did not confine myself to the mixed nitrates of the two metals, but tried also the uranic, ammonio-oxalate, peroxalate, tartrate, citrate, succinate, bromate, chloride, and bromide in larger or smaller quantities, either in a single solution with the silver salt or in greater or less quantities, as "salting solutions" before floating the paper on the silver bath. The use of uranic nitrate (and also of ferric nitrate), partly or entirely, as a sensitiser for the iodide or bromide of silver, calotype, or wax papers, deserves a trial with *sulphate of iron* or gallic acid developers.

I am also much inclined to recommend iron as a developer for silver papers, both (particularly on albumen papers) for ordinary positive developement printing and still more for waxed-paper negative processes, for which, as far as I happen to know, it has not yet been used. My old experiments pointed strongly towards the possibility of getting some of the advantages of ordinary waxed-paper process as to keeping qualities and probable utility in warm climate, without diminishing the sensitiveness, so much as present waxed processes do, by preparing our paper with a *very weak* solution of turpentine (or benzole). Probably about half or *less than* half the quantity of wax employed by Mr. Lawson Sisson might sufficiently protect the chemicals without diminishing the sensitiveness too far. The great point is to ascertain what is the *smallest* quantity of wax which (equally diffused by application of a solution of it) will sufficiently protect the chemicals against unequal absorption of moisture by the paper, and against the disturbing action to be guarded against, and then to use *no more* than that quantity, as we can *afterwards*, for transparency, wax the *finished negative* to any extent which we please.—I am, yours, &c.

Edinburgh, Oct. 23, 1858. C. J. BURNETT.

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* For the *latest novelty*, also, of toning the uranic prints with sel d'or, see my paper in February of last year. In using uranic salts for camera work, there is no objection to hyposulphite, as a little trouble in washing is not likely to be grudged there.

STEREOSCOPY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir,—You were correct in concluding that I am the person with whom you had some controversy in *Notes and Queries*, and I remember that you, in your concluding communication, said you supposed you must be classed in the category of incorrigibles: a supposition from which, I regret to say, I see no reason to dissent; although when I read what you had said at the meeting of the London Photographic Society, in May, 1857, I thought you had arrived at what I considered correct views of stereography, I am, however, now satisfied I was wrong.

In your comments on my letter I consider you have not treated me quite fairly, as, in the first place, they will, most probably, lead to incorrect inferences, for I laid down no dictum, I merely stated what I *know* to be right, and I trust in language that did not infringe the admirable motto which you gave us, and which I do not admit as at all applicable to myself; and, in the next place, you avoid all reference to the example I gave, which embraces the gist of the whole subject; for, if what I said would result from it, be carried (and I challenge any one to prove they, the results, are incorrect), it follows that any departure from two-and-a-half inches must be erroneous, and in the ratio of such separation. This being a fact, there ceases to be room for opinion. But, if any one prefers error to truth, then it were not for me to attempt to limit either his taste or the want of it. I might, perhaps, regret his folly, for such, in my estimation, a persistence in error, with a knowledge of its being so, it is. It was Mr. Ross who was dictatorial: he came to a conclusion, and then gave to the public a formula which was to be looked on as almost axiomatical, but which, however, ingenious, would, in its practical application, lead to most palpable absurdities. I, knowing this, gave an example proving that such must be the results, and by so doing merely told a simple truth *in plain language*. I did not dictate; I merely stated what I know to be a fact, and which no amount of *quibbling* can refute. And, as confirmatory of my views, I will quote Sir David Brewster, who, in his work on the stereoscope, says: "That unless we require an increased relief for some special purpose, landscapes and buildings should be taken with the normal binocular camera, that is, with its lenses two-and-a-half inches distant. Scenery of every kind, whether of the picturesque, or of the sublime, cannot be made more beautiful or grand than it is when seen by the traveller himself. To add an artificial relief is but a trick which may startle the vulgar, but cannot gratify the lover of what is true in nature and art."

I thank you for your comment on *vanishing* points, as that portion of my letter was certainly not so perspicuous as it ought to have been, although any one conversant with perspective could have understood it. What I meant was this: that, as in perspective a flat surface is used, if it were placed parallel to the building (and in my example it should be), there could be no vanishing points for the horizontal lines, even if they extended to a mile or a thousand miles; although to the *eye* of the observer (the retina being a concave surface), there would be a vanishing point to either part of the building from the centre of it to which the eye might be directed. But then the vanishing point for the right hand part would be at the right hand and *vice versa;* whilst by the formula of Mr. Ross the vanishing point for the right hand part would be at the left hand, and *vice versa*. This will, I trust, render my intention clear and satisfy you on this point.

And allow me to repeat, that I think all *we ought* to require, is a picture such as our natural vision presents us with. For surely, when one looks in the stereoscope, he supposes he sees an object from that *one* point from which he is viewing it, and if so, how can two positives taken thirty yards apart (see Mr. Crook's rejoinder to you at the May meeting), realise such an idea? Mr. Crooks may say what he likes, I differ with him.—I am, yours, &c.

T. L. MERRITT.

Star Hill, Rochester, Nov. 18, 1858.

[As our correspondent applies his "hard expressions" in the present communication only to ourself, we do not mind allowing them to appear in all their natural ruggedness, *e.g.* the word *quibbling*, but when directed against the remarks of another contributor, we cannot admit of his opinions, however erroneous they may be, being characterized as "*monstrous absurdities*" (the exact phrase employed as we find on reference to the manuscript) without some attempt to convey the idea intended less offensively. Our correspondent says he *did not dictate*, but we find him stating that "*all which ought to be required*," *&c.* p. 284, and again in the present letter, which certainly *looks* to us like dictation. We have never yet been deterred by any "authority," however exalted, from combating what we believe to be error, and although in the quotation given, we find the propriety of a departure from certain rules laid down, admitted for *special purposes*, and consequently all that we have contended for, but we cannot assent to the proposition attempted to be imposed by inference—even by Sir David Brewster—that *all* that is *true in nature* must necessarily be true *in art*.]

STEREOGRAPHY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir—In the last number of your Journal is a letter from Mr. Merritt commenting on an article by Mr. Ross, on the distance the camera should be moved in taking the two pictures for the stereoscope. With Mr. Merritt's remarks I entirely agree, and in fact had, on first perusing Mr. Ross's letter, written you my opinion, but which I never sent off, thinking some more influential person would take up the subject. Taking the lens most in use, one of four and a-half inches focus, and multiplying by four as directed by Mr. Ross, gives eighteen inches as the proper distance.

A stereograph on this principle would present objects as seen by one of the largest sized elephants in existence, but such as mortal man could never hope to see (by the bye, is it not demonstrable that the larger the animal the more correct in their apprehension of comparative distances?). I am and have ever been of opinion, that photographers moving their cameras more than two and a-half inches are only pandering to a most vitiated taste, and sacrificing truth and honesty for effect. An object, X, at a given distance from an observer, say, for instance, twelve feet, is seen to cover a certain point in the back-ground which we will call S when viewed from one station, and another point P when viewed from the other station, eighteen inches distant; but observe the consequences. In order that a person whose eyes are only two and a-half inches apart should see X projected on S by the left eye, and the same object projected on P by the right eye, the object X must be brought forward to a spot only one-third of the distance that it is in reality, that is four feet. Thus the idea is formed in the mind of proximity, but the bulk of the object not being increased in proportion, as it should be, but remaining of its original size, and consequently subtending on the same *angle of vision*, the impression is created that you see an object that is actually three feet in height reduced to a foot, a man of six feet high to a mannikin of two feet, a Goliah of Gath in fact, to the altitude of General Tom Thumb.

As I before said, these so constructed stereographs would suit an elephant or hippopotamus, whose visual organs are half a yard apart, and I am decidedly of opinion, that if the whole lot of them were presented to the animals referred to, photographers and others would sustain but small loss.

I am, yours, &c.

Morebattle, by Kelso, R. FOX.
November 17, 1858.

ANSWERS TO CORRESPONDENTS.

W. W. S.—A three-inch portrait combination, when removed further than usual from the sitter, will produce a picture upon a small plate equally well with a smaller lens, *unless there be much moisture in the atmosphere*, in which case the greater the distance the more haziness of detail there is likely to be. The long focus-lens, at a greater distance, also obviates undue enlargement of the feet, hands, &c. With regard to a camera, much depends upon the fancy of the operator; but if you require one for portraits alone, we should recommend a *rigid square one*, so that there is no necessity for turning it, whether you want to use wide plates or tall ones. A rigid camera can be made very light; and if you want to move it from place to place, it will serve to pack your chemicals, &c. in. We do not think you will gain any thing, in an economical point of view, by using only one camera for $8\frac{1}{2} \times 6\frac{1}{2}$ plates for portraits, and also for stereoscopic proofs, as the cost of adaptation to both purposes would probably be greater than that of two separate cameras, and the discomfort in operating would be much increased. If you are any thing of a hand at carpentering, you might make your own camera, either of thin *milled board* or deal, excepting the dark slides and groove into which they fit—and for this purpose we prefer very plain, but dry Honduras mahogany, such as is employed for coach panels.

Amateur Photo.—Unquestionably, *as a rule*, better photographs are to be obtained by wet collodion than by any dry process, because living and moving objects can be included; but if these are to be excluded, the convenience of using dry plates is not to be lightly disregarded. We have seen beautiful results by Taupenot's process, by Fothergill's, as described by Mr. Keene in recent numbers of this Journal, as also from many other dry processes. Our advice on this head, however is choose any one of them which you fancy most, and *stick to it*. Depend upon it you will then get good results.

R. S. D.—Your hint shall have our attention.

Albumen.—To mount paper positives, they must first be cut even and arranged upon the card-board, plate, paper, or whatever you wish to attach them to, making a slight pencil mark at each of the angles. The card, &c., must then be slightly damped (holding it over a dish of boiling water does well,) then with a flat camel's hair brush coat the back of the photograph with a thin film of thick gelatine that *has been boiled long enough* to permit its congealing—in fact, converted into what has been called *metagelatine;* when slightly dried, apply carefully and evenly to the mount where the marks have been made, and dab it well with a soft cloth or silk handkerchief, beginning in the middle so as to expel all air bubbles. Place it under pressure to dry, being careful not to do so until the moisture on the surface has sufficiently disappeared, to prevent any risk of its adhering to the press. When dry, it may be hot-pressed, that is, placed between heated metal plates, and subjected to considerable pressure, which glazes the surface; but a better plan is to place the proofs between smooth milled boards, and pass them through a copper-plate press. They may be varnished in a variety of ways if desired, but the least objectionable, is perhaps to give them a coat of albumen, as you would prepare albumenized paper, only *omitting the salt.* When dry, they may be floated in spirit, to coagulate the albumen.

L. M.—We congratulate you upon your great improvement since we last saw your work.—1. The lenses employed appear to be very good, and your method of employing them quite correct. 2. We do not think you would be any better off with single ones; but 3. If you should get any, we prefer those of the maker you name. 4. The *scale* (that is, the size of each object at a given distance), is dependent upon the focal length of the lens employed; the shorter the focus, the smaller the picture, and *vice versâ*; consequently, a shorter focus would be just what you dislike. 5. All your negatives are a trifle *under*-exposed; a little more time would give more detail in the shadows and foliage, and the high lights would not be quite so vivid. The lane scene is well chosen, the village and distance good, the arbour best for exposure, but even that is not quite " done" enough.

Birmingham.—Your letter arrived after our last was in type. The material you enclosed was a deposit of carbonate of silver, arising from an excess of the carbonate of soda used in neutralizing the baths.—*Remedy:* The careful addition of an acid, either nitric or acetic, stirring between each addition of a few drops.

T. L. Merritt.—Your note, with diagram, shall appear in our next.

NOTTINGHAM PHOTOGRAPHIC SOCIETY.
President:
HIS GRACE THE DUKE OF NEWCASTLE.
Vice-Presidents:
COLONEL WILDMANN, Newstead Abbey.
CHAS. PAGET, Esq., M.P., Ruddington Grange.
LEWIS HEYMANN, Esq., Mayor of Nottingham.
SAMUEL NEWHAM, Esq., Nottingham Park.

It is intended to Open an Exhibition of Photographs about the 6th of January next. Residents in London and its vicinity, who desire to exhibit, are requested to send their works to Mr. J. Green, 14, Charles Street, Middlesex Hospital, not later than the 24th December. Persons residing in the Provinces can address their pictures to the Secretary of the Society, Government School of Art, Nottingham, to whom all other communications can be addressed.

N.B.—It is requested that Pictures intended for Sale should have the prices affixed.

CRYSTAL PALACE.

Photography.—The Directors are prepared to receive Tenders for Renting the Photographic Department for one year, from and after the 1st January next. Tenders may be made either upon an exclusive privilege of taking Portraits only, or Portraits and Views within the Palace, or merely for the occupation of an appointed space without such exclusive right. Every information with regard to this important department may be obtained from the Secretary, at the Crystal Palace, to whom Tenders must be addressed on or before Friday, 3rd December. The Directors do not bind themselves to accept the highest or any tender.

By Order,
GEO. GROVE, Secretary.
Crystal Palace, Sydenham, S.E.
November 18th, 1858.

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London: J. BARNARD, 339, Oxford Street.

The
Liverpool & Manchester Photographic Journal.

New Series. No. 24, Vol. II. — DECEMBER 15, 1858.

The present number completes the current volume of the *Liverpool and Manchester Photographic Journal*, and with it we have an announcement to make, that we trust will prove satisfactory to our readers. The constantly increasing popularity of our fascinating art, together with the continually extending range of our official representation, compels us to forego a designation that implies local restriction; but it would be a matter of extreme regret to us, to interrupt, *even in appearance*, the friendly relations that have always existed between us and the Photographic Societies of Liverpool and Manchester; we shall make the now necessary change of name as slight as possible, and appear on the 1st January, 1859, as "The Photographic Journal: the special organ of the Liverpool and Manchester Photographic Societies, and North London and Chorlton Photographic Associations;"— but in order to obviate any confusion by a re-duplication of numbers, and bearing in mind that we shall be entering on the sixth year of our existence, we purpose continuing the numerical series from the original establishment of the *Journal* five years ago.

With this alteration of title, an increase of size to that of demy quarto will also be effected. For the information of the uninitiated, we may say that this is the size of our older contemporary, the *Athenæum*. This change, by affording increased space, will allow of the insertion of much interesting matter that we have hitherto been obliged materially to curtail; new responsibilities will be assumed, and increased variety, together with several new features, will be introduced. In addition to our existing valued agents, others will be appointed in most of the Provincial towns, as well as many new ones in the Metropolis, by which arrangement the charge of the extra penny for postage will be saved to the majority of our subscribers.

Arrangements have also been made for an extended circulation on the Continent, in America, and the Colonies; and the interest of our advertising friends will be duly cared for.

Although the *Journal* is to remain under the present management, we are in future to be aided in our labours by a staff of able assistants; but we purpose conducting it in precisely the same spirit as hitherto: and we take the present opportunity of thanking our numerous friends for their kind support, and of assuring them, that it will continue to be our earnest endeavour to keep them *au courant* with all that is new and interesting in our art, and to smooth any difficulties they may experience in the pursuit of it.

With the number of the 1st of January, 1859, we shall present our readers with a Title and Index for the present volume.

Wishing all our photographic brethren a merry Christmas and a happy new year, we pass to matters of more interest to them.

It is really surprising to find how many phases there are to which photography may lay claim. Photography as an art, photography as a science, photography as a caricaturist, or as a faithful delineator; the optical, the mechanical, the chemical phases: we have experienced the serious and the comic phases, and now we must add another to the list — *the pugnacious phases.*

We have not very often witnessed such a scene as that which occurred at the last meeting of the London Photographic Society; nor is it, indeed, an easy matter to give a description of it. Those who remember the O. P. rows, can possibly experience a faint conception thereof; and every time it occurs to our own recollection, we think also of the words, "For the battle of the warrior is with confused noise," and are almost surprised that we are not able to add the conclusion of the same quotation—"and garments rolled in blood."

The special business of the evening was the discussion of the subject of Printing in Carbon, and an unusually large attendance of members was the consequence. After the ordinary routine business (which usually occupies about ten minutes) had been got through, the list of those members of council which the council, as a body, recommend to the members for retirement, together with a similar list of those recommended for election in February next, was submitted, in strict accordance with the laws of the society; when a member, whose zeal far exceeded his discretion, accused the council of tyranny and dictation in no measured terms, and persisted in addressing the meeting in spite of the most unmistakeable expression of the strongest disapprobation from nine-tenths of those present. The result was, a discordant yell that drowned every word the speaker attempted to utter, and this matter lasted for upwards of half an hour.

After such a very unpleasant preliminary introduction, it is not surprising that Mr. Pouncey's carbon printing process (the antecedents of which are by no means in good odour) should fail to pour oil upon the troubled waters, particularly, as in place of any explanation thereof, he simply made some very personal complaints against the usage he had met with from the late secretary, exhibited a few specimens of his printing, and then wished to submit a series of resolutions to the meeting, in glorification of his own achievements. The whole affair was so exquisitely ludicrous, that we can scarcely realise the fact that it was not a mere phantom of the imagination.

We presume that Mr. Pouncey will not deny that the specimens he exhibited were as good as he was able to produce; and we now propose to give our readers an impartial statement of our opinion of them.

The improvement effected over those he displayed upon the occasion of his former visit to the London Society is undeniable; the colour of the proofs unobjectionable, and altogether holding out a *very fair encouragement* for a reasonable expectation of future excellence; but the statement made by Mr. Pouncey, which we also find in the pages of a contemporary, "that the process has been brought to the same perfection as any other photographic process," is not borne out by facts. Although very much improved, and capable of producing, in Mr. Pouncey's hands, very presentable landscapes, they are certainly not equal, nor nearly equal to good silver prints; while for portraits—we should like to see the lady who would have the courage to give away *her own* if printed by this process! The chief point of failure is just what we have before indicated in these pages—want of good half tone; and though we freely admit, that the defect has been *very materially lessened*, it would be folly to deny that it still exists. Owing to the same cause, landscapes, though presenting plenty of detail, are remarkably deficient in *atmospheric effects*, the distance and foreground being apparently compressed together. It may be supposed, that this fault is due rather to the negative than to the paper proof; and to some extent it may be the case, but only partly so at any rate, as the silver print from the same negative which accompanied the carbon one was not nearly so faulty in this respect.

The only portrait was that of a gentleman, whose blackened eyes gave the beholder the notion that he must have been a member of the prize-ring, and this was judiciously kept in the back-ground.

It is much to be regretted that Mr. Pouncey had not some negatives better adapted to display his process, as we are convinced, that *even now* it is capable of better results than those he exhibited; we sought him out after the meeting, with a view to offering a friendly suggestion on the point, notwithstanding a very uncourteous remark he published elsewhere; but in consequence of our not quite agreeing with all his assertions, he put himself into such a defiant attitude, that we did not think it worth while to make ourself known to him, or to continue the conversation. Our duty to our readers, however, impels us to mention here, what we have no doubt will be a future advantage when the process shall have been further improved; that is, the probability of this mode of printing being peculiarly adapted to weak transparent negatives, full of detail, because, as the contrasts of extreme light and shade are by this kind of printing considerably exaggerated, it is precisely the remedy to employ for rectifying a deficiency of intensity in the negative.

We have to observe, by the way, that we have met with two gentlemen who have received papers of instruction from Mr. Pouncey (they having been subscribers to the fund in course of collection for him), and although a contemporary says "they will encounter no difficulties, but succeed at once," such has not been the case in the instances in question.

There is another point to which we wish to direct attention. At the meeting to which we have alluded above, there appeared to be an extraordinary confusion of ideas between photographic *printing in carbon*, and photographic engraving, or photolithography.

Now the first-named is as great a desideratum as the other two, but differs from them in principle, and indeed in almost every respect. They are not antagonistic, but supplementary to one another. Photographic carbon printing is the desire of the amateur, and of those who wish for a *few* copies of a subject; photolithography and photographic engraving are the requisites for book illustration, or where *many* copies are wanted.

The death of Mr. Robert Howlett inflicts a severe loss upon the photographic world. His works are better known than his person; for though a very skilful manipulator and ardent follower of his art, his naturally retiring disposition allowed of his forming the acquaintance only of the few.

M. Niêpce de St. Victor has presented a third paper to the *Acadamie Francaise* upon what he designates a *new* action of light, or as he now phrases it—"*upon an action of light hitherto unknown,*" containing many interesting observations; amongst them, he appears to have demonstrated the fact, that a luminous impression may be made upon a very large number of substances, which impression can be rendered visible to the eye by aid of any other substance which exerts a chemical action upon the former; and further, that any of our ordinary processes may be varied in the order of their manipulations; for instance, that in the calotype we may receive the impression upon the gallic acid, instead of the iodide of silver, provided that in developing the picture we supply the ingredient previously omitted.

It is not unfrequently that we meet with an inquiry, whether any one has successfully repeated the experiments of M. Niépce de St. Victor as regards the storing up of light, either by insolation of an engraving, or a sheet of white paper; and although we find many who have tried the experiments, we have not in any instance met with one who has accomplished his object. We shall be much obliged to any of our friends who may have succeeded by their relating the particulars for the general benefit. We do not regard the developement of the proofs upon papers prepared by nitrate of uranium as at all satisfactory in proving the theory sought to be established. We cannot perceive how the phenomenon differs from the ordinary chemical one as admitted in the case of other developed pictures. We have ourself tried the experiments as indicated with unprepared paper, and also with those saturated with tartaric acid; but in both cases, many times repeated, with various degrees of exposure, from minutes to many hours, not a vestige of any kind of impression could we perceive. This is a mystery we should much like to see cleared up.

MANCHESTER PHOTOGRAPHIC SOCIETY.

A Meeting of this Society was held on the 1st inst., at the Literary and Philsophical Society's House, when Mr. Sidebotham presided.

Mr. Mann, the Hon. Secretary, read the Annual Report of the Society for the past year, of which the following is a copy—

ANNUAL REPORT.

The Committee of the Manchester Photographic Society in presenting to the members the Third Annual Report, are glad to be able to state that the debt which had been imposed upon them by their Exhibition at the Mechanics' Institution, has been entirely discharged, and that the Treasurer's account shows a balance in his hands of £13, 6s. 1d.

The meetings of the Society have throughout the past session been numerously attended, and much interesting information has been received and imparted in the conversations which usually follow the reading of the paper for the evening.

The following subjects have been brought under the notice of members in the form of papers—"*On Colouring Photographic Slides for the Magic Lantern,*" by Mr. Sidebotham. "*On the Oxymel Process,*" by Mr. Mann. "*On the Artistic Arrangements of Photographic Landscapes,*" by Mr. James Mudd. "*On the Optics of Photography,*" by the Rev. W. J. Read; and at one of the meetings the Council were favoured with the attendance of Mr. Ackland, who gave some useful particulars as to the lenses of Professor Petzval, and introduced a compact stereoscopic camera with single lens. Professor Roscoe also called the attention of the Society to the measurement of direct sunlight, as measured by Mr. Campbell's sun dial; Mr. Dancer to some curious marginal appearances; Mr. Noton to a variable stop contrived by him; and Mr. Sidebotham to a lens cap, for taking instantaneous portraits, and to a contrivance for carrying two or three plates in a small compass.

The Society's illustrations have not been continued; there appears to be no sufficient demand for such expenditure of the Society's funds; the Council for the ensuing year will probably devote their early attention as to their continuance or not, or for the purchase of published works of excellence for the Society's portfolio, or of instruments for the use of members.

The thanks of the Society are due to several members for donations to the Society's portfolio, which has been further enriched by the replacement of the prints by Mr. Braun, which were damaged at the Art Treasures Exhibition, the new set being even finer than the former. The Sub-committee appointed in November last to examine the various processes for keeping prepared glass plates have reported generally in favour of the collodio-albumen process. From the specimens lately exhibited by members, the Council are glad to see that their attention is again called to the production of larger pictures. At one time it was feared that stereoscopic photography was engrossing too much of their attention.

During the past year, several subjects of the highest importance have occurred; among these may be named M. Niepce St. Victor's discovery of some of the latent properties of light, and Mr. Fox Talbot's new process of photoglyphic engraving. It does not appear that many amateurs have taken up the former subject, but the latter is one which seems to work a considerable change in the progress of photography among the fine arts. In the chemical department, uranium printing has also attracted considerable attention, and Sir J. F. W. Herschel's discovery of the photographic properties of junonium seem likely to do the same. Several new processes, or modifications of old ones, have been announced, among these the principal are Mr. Fothergill's dry process, and Mr. Pouncey's method of printing in carbon.

The art position of photography is daily becoming one of more and more importance. Private enterprise, unfettered by connection with any society, has been led to establish an independent journal for its especial behoof. No exhibition of arts-manufactures is complete without its photographic department. Books and newspapers are daily becoming more indebted to photography for illustrations. The landscape painter is often under the necessity of resorting to the camera for accurate information of details attainable by no other means. Of portrait painting a recent critique says — "Indeed portraiture has long ceased to be a distinctive school among us, and the recent inroads made upon its rewards by the wonders of photography encourage but little hope for its future." It is also of increasing utility to the scientific man in a variety of ways; to the chemist, as a test; to the meteorologist and astronomer, as a faithful recorder; and to the literary man, as an accurate copyist. It has made itself useful to the anatomist and surgeon, and to the microscopist it has laid open an entirely new field, whilst to the engineer and mechanic it has become no less indispensable.

It seems incumbent, then, upon all practising the art, whether as amateurs or professionally, to do all in their power to advance its progress. Every scrap of information should be carefully stored up and laid open for the use of all — the greater freedom with which this is done so much more rapidly will photography advance to its proper place in the list of useful arts. It will be the duty of your Council to further us as much as possible in this object; and they believe, that by a combination of energy, such as the Society affords, much may be accomplished.

The Treasurer's accounts were then read, when the Report and the accounts were approved and adopted by the meeting.

The President stated, that Mr. Mabley had suggested to him a process for printing in carbon, which possessed much ingenuity, and might prove a matter of great importance.

Mr. Mabley said that he felt some difficulty in bringing the subject before the Society, as he had at present no satisfactory results to show, but as he believed the proposed method was correct in theory, he was anxious to obtain the cooperation of his experimental brother members. Having worked at the carbon process of Mr. Pouncey, he was impressed with the difficulties arising from its mechanical principle, he was therefore induced to look for some other source of carbon, and as sugar is readily decomposable by sulphuric acid, the oxygen and hydrogen being in correct proportions for forming water, it appeared that this substance might be employed for the end in view. To a solution of bichromate of potass and gum, the sugar was therefore added, the mixture spread upon paper, and exposed under a negative; the resulting picture was then washed to dissolve the unaltered bichromate, the sugar on those parts being removed therewith, but remaining imprisoned with the reduced bichromate. The picture was then floated on sulphuric acid, and the decomposition of the remaining sugar afforded a picture in carbon, but unfortunately the tissue of the paper was completely destroyed.

The President said, that he had that day tried Mr. Mabley's method, and thought there was much promise in it, he stated that if the paper were thoroughly dried before the application of the sulphuric acid, it would not suffer, but would be converted into artificial parchment.

Mr. Mabley said that the same principle of operation might be adopted for other pigments instead of carbon, for combining a salt in solution with the bi-chromate, washing it after exposure to light, and then heating it with a reagent, a precipitate would be formed on the altered bichromate without the possibility of injuring the lights, as one of the elements calculated to form the picture, would be removed from them by washing, before the other was applied.

Mr. Dale remarked, that he thought the theory a good one and commented upon the subject.

The President then called the attention of the meeting to the important fact discovered by Mr. W. Young, namely, that pictures could be developed in the daylight — the iodide of silver having been previously dissolved away by hypo-sulphite, and considered that it might lead to very important results.

Mr. H. Young showed a very good position stereoscopic print on glass, which he had developed in daylight, and explained how the idea first occurred to him.

Mr. Dancer remarked, that if Mr. Young had tried to develope in the dark after dissolving off the iodide of silver he would perhaps have failed, and that it had been established by experiment that a picture might be developed in daylight by previously washing the plate in a solution of iodide of potassium.

Six large and very beautiful sun prints, from collodio-albumen negatives, were presented by Mr. Mabley, to the Society's portfolio.

Mr. Pyne exhibited some carbon prints, taken by Mr. Pouncey, and which were considered very good — one being particularly admired.

Mr. Dancer having brought a lantern and the requisite apparatus, occupied the rest of the evening by exhibiting numerous transparencies, taken by the members, by various processes, most of which showed very beautifully on the screen; and after a vote of thanks to Mr. Dancer, the proceedings closed.

LONDON PHOTOGRAPHIC SOCIETY.

THE ordinary general meeting of this Society was held on the 7th Dec., 1858, R. FENTON, Esq. in the chair.

The SECRETARY read the minutes of the last meeting, which were confirmed.

The CHAIRMAN announced the following names as those recommended by the Council for retirement in February, next and for election in their place—

For retirement.—Vice-Presidents— Dr. Percy and Dr. Diamond. Members of Council—Mr. Anthony, Mr. Shadbolt, Mr. Malone, Sir Geo. Clark, and Mr. Maskelyne.

For election.—Vice-Presidents—Mr. P. L. Neve Foster, Mr. Vignoles, F.R.S. Members of Council—Mr. Mackinlay, Mr. Thurston Thompson, Mr. White, Mr. Harding, and Mr. Maskelyne.

Mr. BISHOP—Sir—may I take the liberty of asking under what particular rule it is that the Council takes upon itself the liberty of dictating to the members the names to be put in nomination.

The CHAIRMAN—The rule is the 7th.

Mr. BISHOP—I think, upon that rule seven, Iam in a position to refute the position of the Council that they are at liberty to nominate. I think, under the constitution of these rules, the proposal for the nomination of the Council rests in the hands of the Society and not in the hands of the Council.

The CHAIRMAN then read the rule.

Mr. BISHOP—Then upon those particular words in the rule I take issue as to the right of the Council to nominate any members.

The CHAIRMAN—That question I cannot admit. I go by the rules of the Society, and any question as to the propriety of those rules does not come before the Society at this moment.

Mr. Bishop—I am in the hands of the Society, and I should say with reference to the intepretation of that rule, now is the time.

The CHAIRMAN—I cannot allow you to go on, sir. I have given my opinion of the interpretation of the rule, and I must request you to sit down.

Mr. BISHOP—With all due deference to—

The CHAIRMAN—I must request you to sit down, sir, and I call upon the meeting to support the chair. Gentlemen, I was about to call attention to a circumstance which we all deplore, viz., the death of Mr. Robert Howlett, a member of this Society. We are not so well acquainted with his face, perhaps, as we should be, owing to his retiring habits and modesty of demeanour, but I am sure the Society will not allow his memory to pass away from us without our testimony to his merits.

Mr. BISHOP again rose, and the scene of confusion that followed was as indescribable as it was painful to witness. The point of objection was most absurd. In most societies it is the *duty* of the Council to *recommend* certain names for retirement, and others to fill their place; at the January meeting *any member* can propose *others instead*, and both lists are then before the whole body for a month, the election by ballot taking place in February. There is no dictation in the matter.

Mr. POUNCEY was then introduced to the meeting to read a paper upon "*Carbon Printing*," and said—

Mr. Chairman and Gentlemen—I will tell you how I came in possession of this printing, and will be as brief as possible. If I seem a little excited on the subject, I must beg your forbearance, because it is one that I am very much attached to. On my arrival here, in London, on the last occasion, I could not understand the manner in which I was received, because I came here and asked for the Secretary. I was shown, by a messenger to a room, when I heard it said, "Oh, tell him I shall be ready in a few minutes." I waited half an-hour, and was then told he was not here, but the messenger said, "He will be here at three o'clock—will you be kind enough to leave the prints, and call at three o'clock in the afternoon." I left the prints, and in the afternoon I called accordingly, and with reference to the conversation I had with that gentleman, he let out that he was very much displeased that my printing process had not appeared in the *Journal of the Photographic Society* first. He knew what had taken place with Dr. Baker and Mr. Sutton. Some time afterwards, my attention was arrested by something about carbon printing, in a journal in London, by the ex-secretary of this Society, and who, I may say, is at present employed by certain publishers in London.

The CHAIRMAN—We must avoid personalities.

Mr. POUNCEY—If I am dealt with, I must answer a plain question.

Mr. BISHOP—I thought we came here to hear of carbon printing, and not all this nonsense.

Mr. POUNCEY—Then I ask, would Mr. Fox Talbot like to put his early impressions at the side of the impressions of this day? I have, in my possession, some of his early ones. I got one from the *Athenæum* of 1853. I come to the allegation that there is another process wanted. Here is a book, I hold in my hand, published five years later, and I maintain that it is difficult for any one to prove that these early photographs ever were as good as photographs are now. I am prepared to prove, that my specimens of carbon printing are superior to Mr. Fox Talbot's early impressions, and I will turn out any number superior to his early impressions. I am now prepared, satisfactorily, to prove by these specimens, that all the detail, the half-tones, and every thing else that can be required in a photograph, is exhibited here; and if I had only produced one specimen, it was a sufficient proof of the capability of the process; and if it had never gone farther than the reproduction of prints, it would have been invaluable in that respect, and it is a simple process. This print I hold in my hand, was produced by a man, on Friday last, who had never seen nor had any thing to do in the least with photography. I put a paper of instructions into his hand, and said, see what you can do with that. Now I put that to the meeting, and ask, is not that a clear proof that it is workable by any man who has common sense. The carbon is not peculiar to me, but it is applicable to anything and every thing. Here is a letter I received from Mr. Rogers, who said—I prepare a very peculiar kind of carbon, which will transfor printing. I then received a piece, about as much as a pinch of snuff, in paper.

The Chairman read a small piece of print which had been handed to him by Mr. Pouncey, "Mr. Rogers — December 3rd, 1858 — This I printed this day with the carbon received in your last. Exposed twenty minutes. No sun and bad light," and then read another similar paper.

Mr. Pouncey — I think that this is proof that it is not confined to me or to any particular carbon, because this gentleman encloses what he has done for the first time. I suppose it is not necessary for me to prove that the prints are permanent, if so, I am willing to submit them to any test, and I will guarantee that you cannot destroy them by any means. Then you will say — "Can you produce all the tones and half tones, and every thing that is requisite in photography?" In answer to that I ask — are not these specimens every thing that can be desired? I have no hesitation in telling you what I think the secret of success depends upon. Here is a piece of paper prepared, I believe, to absorb moisture, the solution being absorbed into the face of the paper, and not on the paper, and if you will examine these two little bits, there is scarcely any thing on the face, because it will be evident to all, that if there was a thick coating on the face the light could not do its work equally over, but if this paper absorbs it, the light penetrates it, and hardens the colouring matter, the other remaining soft when it goes into the water, and there is nothing left in the print that can by any possibility hereafter affect the permanency. After the print is finished, it contains *nothing but carbon and paper.* I know there are a number of photographers about London who think it all a hoax. I should say to those gentlemen, if they do not know better they ought to know.

The Chairman — Personal questions are not to be discussed here.

Mr. Pouncey — Well, sir, but am not I a personality? I only want a plain straightforward way of explaining the matter, and if I am not personal I cannot give an answer. I was told by this gentleman, then, that if I could produce copies by carbon equal to silver, I should have the credit of one of the greatest discoveries photography has ever known. (Cries of "Yes, yes.") Then have I done so?

Mr. Malone — That is the question.

Mr. Pouncey — Is it not so?

Mr. Malone — Meet that question.

Mr. Pouncey — The specimens are before the meeting now, and therefore I meet it by submitting certain resolutions ——

Mr. Malone — Sir, I rise to order. This is not the time for resolutions. I brought the subject before the last meeting. When Mr. Pouncey came before us on a previous occasion, he certainly was met in an equivocal manner. I did my best then to support him. I said we ought to hear him fairly. It was not because he was likely to be a patentee that we should put him down. Mr. Pouncey has been kind enough to come here with a paper, and I came prepared with specimens. I gave way to Mr. Pouncey in order that he might read the paper, and I think we out to treat him with some little indulgence. I would suggest that he should read the paper he intended instead of his temporary address which he follows with resolutions. I do not want to interfere with, or to stop him, for I take great interest in the matter. If it is a secret, let him say at once, "I will tell you up to a certain point, but beyond that I retain the secret."

Mr. Pouncey—I have *not* come to read a paper, sir. I have never given any notice to the meeting that I shall read a paper.

Mr. Malone — Then I have some remarks to make when you have finished.

Mr. Pouncey—Then make your remarks at once; I shall be very glad to hear you. I met Dr. Diamond to-day, and was prepared to turn out a print in his presence, and have promised to do so on Thursday. I am willing to demonstrate it before any credible witness.

Mr. Malone—Perhaps Mr. Pouncey will forget this little excitement of the moment, and favour us with his description. We are not met here to-night to receive an account of the treatment he has received from other journals, or from the Society, because this is not the time.

Mr. Pouncey — Then, apart from any feeling, I have shown you a piece of paper, prepared. I say that *none but myself can prepare* a piece of paper like this; and I am ready to demonstrate it in the presence of any credible witness.

Mr. Watson — Will Mr. Pouncey tell us *how* that paper is prepared.

Mr. Pouncey — No! I cannot answer that now.

Mr. Bishop — Perhaps Mr. Pouncey's object is to acquire information, by which he may be able to perfect his patent.

Mr. Pouncey — I beg pardon, sir; that is not so.

A Member — I think Mr. Pouncey has decided that he will not proceed with his patent.

Mr. Pouncey — Certainly not. I told you at the last meeting I did not desire to get a patent.

Mr. Malone — It is very evident, that Mr. Pouncey is trying to make some use of this Society. The object of this Society is to promulgate new processes and discoveries in photography; and I deprecate the time being frittered away thus. I have no paper to read, but merely to submit some specimens, which you can examine and compare with Mr. Pouncey's process, or with Mr. Talbot's, or with M. Poitevin's, or M. Fizeau's. I hold here now some specimens which I made myself, and some which were made in Paris: in short, I have brought a sort of *resumé* of the whole subject — of the former and the present state of the art, and its future prospects — and trust, in these few remarks, you will treat me with indulgence.

He then entered into a long history of the whole subject of *Photographic Engraving*, including the experiments of Niépce, Fizeau, Grove, Talbot, Ponton, Poitevin, and others. He continued — There are difficulties inherent in all these processes; as we shall find, they will not bear comparison with prints by silver — I say it fearlessly, in Mr. Pouncey's presence, *they will not bear comparison with pictures by silver.* I say these prints are very beautiful, and full of promise; but they are not equal to those by silver.

With regard to these bitumen processes, they are still capable of producing good things in skilful hands; but as Mr. Talbot tells us, tact and dexterity, which every one does not possess, are necessary. I am very sorry we have not at this moment the benefit of some one of these processes as far as they have gone. I am not for waiting until they are perfect. Let us have them as far as they are perfected, and do without the engraver when we can.

Now, as to the permanency, it will not become me to touch upon Mr. Pouncey's process, but I say it is a commercial question how far it will be worth while to put some subject into the hands of a lithographic engraver to finish up.

We come now to Mr. Pouncey's process, of which I know nothing except what has appeared in the various journals. This Society has been censured (and especially a section of it, the Printing Committee, of which I had the honour of being a member) for not taking up Mr. Pouncey's process: there stands Mr. Pouncey, and I leave it to you to say, whether he is the sort of gentleman on whose account we are to be censured, for not immediately rushing into his arms when he will not tell us in what his process consists; but, however, we will let that pass, we are quite able to bear it. I may observe, that this gentleman came here, and he relates very graphically the reception he met with. I am sorry for that; I am sure I did my best to support him; at that time it was his secret, and I said he had a perfect right to keep it. I did not expect to learn much from him, and I am not disappointed. I saw his specimens, and it occurred to me that his process was in all likelihood founded upon this very action of bichromate of potash, as it turned out to be; we guessed the thing, and we were not willing to pay one hundred pounds for that which we knew. Mr. Pouncey has since improved his specimens, and that has altered his position. I will do him the justice to say they are better.

Mr. POUNCEY — I do not want to sell it.

Mr. MALONE — Then as you have allowed others to use your name you should disavow it. This gentleman brought these specimens, which might be either a solution of bitumen in ethereal or other solvent. Mr. Pouncey says they are simply carbon held in the paper. Mr. Pouncey cannot prove that: where is the resinous substance, or the tanin as it is called? How does he prove that it will not break up? I ask him in the presence of any chemist present.

Mr. POUNCEY — I do it upon the authority of Mons. Girard of Paris.

Mr. MALONE — What is the cement then? He has answered the question fairly enough; he says the pictures are carbon; I do not doubt it for a moment. We do not doubt that there is carbon, but the point you have to prove is, that the prints, when made, are as permanent as these photolithographs. Then, next, is the photolithograph, or is the carbon print the better representative of the negative? We have no portraits here, but architectural subjects, which are not fair tests.

Mr. POUNCEY — Every thing is there that is produced in silver.

Mr. MALONE — I took down your words. You said there is the same amount of detail and half-tone, and you submitted some specimens but do you still observe that there is the same amount of half-tone?

Mr. POUNCEY — I am prepared to prove that now.

Mr MALONE (examining two pictures) — What is this?—Is this a photograph and this a carbon?

Mr. POUNCEY — The gentleman does not know one from the other.

Mr. MALONE — I will take your description and not trust my own judgment. I believe that both these are ordinary photographs. I do not believe that either of them are carbon prints. Will you let me take these away and test them chemically?

Mr. POUNCEY — Yes, in the presence of any credible witness, not otherwise.

Mr. MALONE — I say fearlessly, that if those two are shown as specimens, the one by carbon and the other by silver, I say that carbon is a very beautiful result, but do not let us be told that we must immediately say that this is the best process after all, and that we must at once give up silver printing. Let Mr. Pouncey bring it a step further, and then we shall be able to avail ourselves of his process. It has been said that silver prints will not last, but I have some specimens here taken in 1844, not toned with gold, kept in a careless manner; therefore, I say, if they are unaltered from the very first days of Photography to the present, I for one willingly admit that defective manipulation has to do with the fading. I for one should hail a carbon process, but until that process has proved itself equal to the other, and proved itself equally valuable, we must wait. In admitting that 80 out of 100 silver pictures have faded, I say that if we have 20 per cent. of silver pictures, year after year unfaded in a common portfolio, I say in the ordinary sense, silver prints are not fading. There is a set in the Library of the London Institution, the majority of which are unaltered, and as fresh and as vigorous as if they were made a month ago, and in the face of that I never will admit that the silver prints inherently fade. Take the books published by Longman, and I say you will find prints made in 1844 as fresh as possible, and we are now in 1858.

Mr. ENNEL — Sir, I think that there are three advantages attending the process of printing introduced to us this evening by Mr. Pouncey, which have not received the attention they deserve. The first is, that by it we are able to print from ordinary negatives — that you have not to go through a great many processes — transferring to stone and otherwise. Another is, the superior permanency of the prints, for notwithstanding what has been said this evening, I feel assured Mr. Malone will agree that they are permanent, after the decided tests applied by M. Girard and others, of nitric acid. Then I think there is a third advantage, and that is, the comparative facility with which the prints can be taken off the negative. The thing is simply done with carbon and bichromate of potash. At the same time I cannot agree with Mr. Pouncey in saying, that the only thing left in the paper is carbon. There must be something besides carbon; there must be sesquioxide of chromium left in the paper. With respect to the questions of half-tint, I think the specimens carried round this evening prove there is a difference; at the same time it is so small, that it would be highly advantageous for all of us, as members of the Society, to bring this process to perfection; and whether Mr. Pouncey be the man or not which the Printing Committee adopt, I do not know. Let us give Mr. Pouncey his fair trial, for if he is correct, there is nothing which can compete with him; for, after all, the transferring to plate or stone is an objection which is insurmountable.

Mr. Bentley—We have, as I am told, a few thousand copper and steel plate printers in London. Mr. Fox Talbot was six or eight years perfecting his process. When he first introduced it, a person whose name I forget at the moment, believing there was an end to copper-printing, and that engraving was for ever annihilated, gave another man a few hundred pounds to take his business off his hands, and engaged a large house, with a number of windows, in Kentish Town (which I think is now used for a carpet manufactory,) in which he was going to produce engraved plates. I think I may say, that that gentleman died of a broken heart, though I trust, sir, that the gentleman by your side (Mr. Pouncey,) is not likely to do so. I know the case of another person who has since given it up—a Mr. Collin, who is now alive.

Mr. Pouncey—Sir, in all the observations that have been made, not one single carbon print has been produced. Mr. Malone has very ingeniously carried you round the different processes of *engraving* but has not come to the point of carbon *printing*. Now we, as Englishmen, think that the proof of the pudding is in the eating. I expected to have seen a lot of carbon proofs here this evening, and yet there is not one in addition to those I have brought. Then I demand, whether I am not entitled to ask the meeting to sanction the statement, that the first carbon prints are produced by me, and *that those produced by me to-night are equal to the silver impressions.*

Mr. Vignoles—Mr. Chairman. I rise to order. I think it is a standing rule in all societies, that though very glad to receive information, it is an inflexible rule not to pronounce an opinion.

Mr. Pouncey was about to proceed, when

Mr. Bedford said: As this is an interesting discussion, and it is getting late, I propose that it be adjourned to another evening.

Mr. Thurston Thompson seconded the proposition, which was duly put and carried.

During the evening Mr. Hardwich read a paper "*On Toning Positive Proofs upon Paper*," and practically demonstrated the advantages of the method with perfect success upon a proof of Mr. Fenton's, 20 × 17 inches in dimensions.

The following gentlemen were duly elected members of the Society—C. J. Hughes, Esq., Major Wingate, Robert Cradoke Nichols, Esq., F.S.A., J. S. Rocksoro, Esq., Frederick Thirsk,, Esq., Algernon Sidney Bicknell, Esq., George C. Backes, Esq., Rev. C. P. Cleaver, H. J. Cannon, Esq., W. J. Bull, Esq., and Edward Dwyer, Esq.

Specimens of paper photography were exhibited by Mr. McCraw's ink process. By the ordinary printing process, from Mr. Elliot's negatives, taken with his alcoholic collodion, stereoscopic interiors, by Russel Sedgfield, views of Heidelberg, by M. Carl Backes, were exhibited by the Secretary, to whom they had been presented by the producer; and some portraits, produced by the late Mr. Howlett, with one of Ross's orthographic landscape lenses.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

This Society held its monthly meeting at the Odd Fellow's Hall, on Tuesday, November 30, William Howell, Esq., in the chair.

Mr. Isaac Smith was elected a member of the Society.

Some carbon prints, sent by Mr. Pouncy, of Dorchester, were exhibited, and were especially interesting as illustrating some peculiarities of the process, more particularly the kind of paper used. One print on albumenized paper had all the detail but was singularly deficient in depth, while another on slack sized paper, rather thick, was deep in colour and had the half tones quite perfect. For landscapes, copies of engravings, and subjects of this class, the process was regarded as leaving nothing to be desired; but the portraits were not so successful, possibly owing to faulty negatives.

PHOTOGRAPHIC "DODGES."

Mr. Osborn, the Honorary Secretary, read the following paper—

In introducing a paper to your notice under the above rather suspicious title, it is not my intention to enlarge upon the etymology of the word more than to say that "Dodge," in its general acceptation, signifies a trick, and so far as this term applies to my present subject, I am willing to accept the meaning so applied. It is my purpose to introduce a few "tricks" in our art which may be found useful in the practice of photography, and which may act as short cuts to the accomplishment of our wishes in the production of pictures. I must premise, that the following matters are partly culled from the pages of the various journals, and partly from my own experience; and I hope the various correspondents of the journals will not feel themselves aggrieved by any remarks of mine, or think that I am appropriating to myself the fruits of their ingenuity. I shall divide my subject into two classes—useful dodges and specious dodges. Under the first head will come all that is a saving of time, labour, and pocket.

The first thing that perhaps claims our notice is a subject that at the present time is attracting much attention—vignette printing. The method of producing vignette positives by the apparatus of Mr. Atkinson is, I believe, familiar to you all, having been exhibited before this Society. It is accomplished by means of a perforated shade on a stand between the camera and the sitter. Another method, invented, I believe, by Mr. Mayall, consists of a large revolving ring, with triangular points from the margin towards the centre, and placed on a heavy iron stand between the camera and the sitter; a slight motion serves to cut off the sharpness of the edges of the picture. Messrs. Forrest and Bromley have invented a vignetting glass, in which the centre is clear glass, with a gradually darkening halo towards the margin;

this halo being burnt into the glass, is quite transparent, and to produce the effect it is only requisite to place the plate thus prepared over the negative and expose to the light. A beautifully shaded picture is the result. Another method of producing these glasses is open to any photographer. Take a piece of dead black paper or velvet; carefully cut out an oval or round piece, according to the shape you desire, and paste the oval piece on a large sheet of white cardboard. Now fix this up like an engraving to be copied, and take a negative of it, only considerably out of focus. This may be copied of any size, according to the picture you require. Another method is to get a shallow box, or rather a rim of wood, open at both sides. Over one side fasten a piece of cardboard, with the requisite hole cut in it, and place it over negative to be printed, of course cardboard the uppermost. Another method is to place tufts of cotton wool all round the picture on the back of the negative. Several other methods have been suggested, but the above are the most practical.

Connected with the above subject are graduated back-grounds. These may be produced in various ways. One would be to reverse the operation described just now, namely, to take the outside cut off the oval piece of black paper, and paste it on a piece of white cardboard; then take a negative as before, and you will have a plate with a black centre, gradually shaded off to perfect transparency. To use this, take the portrait with a white background, print in the ordinary way two prints, carefully cut out the figure from one of them, and blacken it in the sun; when the other picture is printed, place the blackened piece over the figure, then put the plate prepared as above over all and expose to the sun. By this means you will have a gradually shaded background from light to dark. Another method is to proceed as above with the darkened paper over the figure, and the parts intended to remain white covered with cotton wool in tufts. This will produce the white patch at the back of the head so often asked for, and if nicely done, is very artistic and good. The appearance may be produced very effectively by moving a piece of card over the figure in the part intended to be kept light. Another method I have seen, is to lay a piece of blackened paper over the other paper, and lift each corner in succession, to allow the light to get in; this will give a very nice graduated effect, but requires great care. Very pleasing pictures may often be produced by arranging the figure in a suitable position, printing as before, then covering up with the cut paper, and printing a suitable landscape on the other portions of the paper.

We now come to the consideration of back-grounds for portraits. A very suitable one for general use is a frame about eight feet each way, covered with strong brown calico tightly stretched; one side should be painted of an olive colour (the tint varying according to taste), the other side left plain. This being reversible, is very convenient. I have seen a recommendation to use brown paper, stretched on a frame while damp, as it will be as tight as a drum when it dries. The writer says that paper may be procured, in one piece, the size above mentioned. A very effective back-ground for amateurs who have not a glass-room may be ensured, by placing the sitter at an open window, looking into a yard or garden, and placing the camera in the garden opposite the window. By this means a very natural effect is produced. When a perfectly white back-ground is desired, pure white calico must be stretched across the frame as above. An old blanket, or piece of self-coloured drugget, answers admirably as a back-ground; but as this is so purely a matter of taste, it will be needless to enlarge further on the subject.

We shall now consider the best methods of printing clouds on landscape pictures. Some artists paint clouds on their negatives, but this requires an artist to do it properly, so that it would be of little use to recommend this method, more especially as we can do it much better in a much easier way. To accomplish this satisfactorily, the amateur should take a number of negatives of natural clouds and skies at various times and of different kinds. This may be easily accomplished by instantaneous exposure. Then, having carefully selected a suitable cloud picture for the landscape about to be printed, it will be necessary to secure perfect opacity in the sky, by either painting it out, or (perhaps a better method), by printing first a proof from the negative, and carefully cutting out the outline of the view with a pair of sharp scissors; expose both pieces to to the sun, paste the sky part on the back of the negative, print in the usual way; and then placing the other darkened paper over the landscape, place the cloud negative over all, and print in the ordinary way. Trees may be effectively introduced into the sides of a defective picture in the same manner, if judiciously selected for the purpose. Mr. Rejlander's pictures show how admirably this may be done by the artist.

It very often happens, that the skies of a negative are overdone, and rendered partially transparent, owing to the exposure necessary for the shadows of the picture. This may be remedied by pasting the blackened paper over it, previously cutting the outline as above described, or the sky may be painted over with either oil-colour or the moist black water-colour, sold at the colour shops.

It has often struck me, that the generality of pressure frames sold in the shops are unnecessarily heavy and complicated; the little apparatus I have here answers admirably for pictures of a moderate size—say up to ten inches by eight—as it can be made to any size at a very cheap rate. It consists simply of two pieces of mahogany hinged together, with a very slight bevel between the hinges. Upon this two pieces of velvet are laid, then the sensitive paper, and lastly, the negative. The whole are then held tightly together by means of the wooden clips, sold at about fourpence per dozen. Gutta percha baths and dishes are often made of very impure gutta percha, and will be found to act upon the nitrate of silver bath in a very annoying way. To remedy this, I suggested, in a letter to the *Photographic Notes*, March 6, 1857, the use of a varnish, made of shellac, dissolved in spirits of wine; two or three coats of this make an excellent preservative against any chemical action exercised by the gutta percha. I have kept a silver bath for months undeteriorated in a portable bath thus lined. The dishes may also be coated in the same way, and thus admit of being very perfectly cleaned.

As it is sometimes useful to have dishes of some particular size, which perhaps cannot be readily obtained from the makers, I have adopted the following plan of making my own, which I think may be found useful: I first mark out the size of the dish I want on a piece of hard wood, about a quarter or half-an-inch thick; from this mark I then cut the wood with an outward bevel; the bevel must then be smoothed with sand-paper, and all the sharp edges taken off. I then make a frame of wood, like a boy's slate frame, but bevelled inwards; this is fastened on a slab of smooth wood, and the mould is complete. I then cut out from a sheet of thick gutta percha, a piece rather larger than will cover the hole in the frame; I soften it in boiling water, and having wet the mould, place the softened sheet over the hole, and press the block in its place with some force. Allow the gutta percha to cool and harden, then trim the edges, and you will have a very neat and light dish for any purpose required. When a dish is required for developing either glass or paper pictures, I would by all means recommend the use of paper dishes, as suggested by Mr. Sutton; they are perfectly clean, and may be thrown away when done with. Stiff cartridge paper answers very well for this purpose.

Cleaning glass plates has been one of those subjects in photography that has been worked almost threadbare, the suggestions have been so numerous, that it almost renders it a difficult task to select the best. However, every operator has his own method, and I shall confine myself to one or two. If the plates are very greasy, soaking in a strong solution of caustic soda or diluted nitric acid, will generally prove very effectual. Old collodion, otherwise useless, will be found to clean plates very perfectly. The new material advertised I have not yet tried, but I hear it very highly spoken of. One thing, however, should be borne in mind, and that is, that no matter what you use for the purpose of cleaning the plates, you may, and many persons often do, spoil plates by the last wiping, and people are not half particular enough in having the cloth scrupulously clean and free from grease.

Roughing the edges of the plates, for two purposes, viz.—preventing cutting the fingers, and retaining the silver, may be accomplished in several ways; first by a piece of hard stone cemented on a piece of glass, as suggested by the Rev. Mr. Law, in his paper read before our Society; secondly by a block of stone, with a notch (wedge-shaped) cut in it; the glass plate being drawn through the notch. Another plan I have seen proposed, is to make a notch with a cold chisel in a piece of iron and rough the inside.

I often hear inquiries made about a substitute for ground glass, more especially for stereoscopic transparencies. I believe a very good and structureless coating may be obtained by dissolving a few grains of white wax in transparent varnish, the French, by preference; this is poured on and off in the usual way, on a cold plate. White wax and turpentine gives a very fair coating, but is apt to set in ridges. R. F. Barnes gives a very good recipe in his shilling pamphlet; india-rubber, benzole, and white wax, are the ingredients used.

I strongly recommend the use of syphons attached to all bottles containing silver solutions, or other liquids likely to deposit a sediment, as by having a blow tube attached to the cork, the liquids may be caused to flow from the bottle into a dish, or *vice versa*. These syphons may be made either of glass or gutta percha tubing; the latter, of course, being less fragile.

How to cure fogging in nitrate baths is a fact worthy the knowledge of all photographers. I believe, after all that has been said to the contrary, that exposing the bath to the sun, in a clear glass bottle, is about the best method. Of course, if much organic matter be present, some of the silver will be thrown down; but this is of less consequence than the loss of many otherwise valuable pictures. Some recommend carbonate of soda to neutralize, then filter, and add glacial acetic acid.

I think the use of varnish, for paper stereographs, a matter of very questionable taste; yet as there are many who like it, I am tempted to give a few recipes. The best effect I have yet seen is produced by the use of Marion's varnish. A coating of gelatine, produced by pouring a strong solution of it on a glass plate, previously smeared with ox gall, and then laying the positive face downwards upon it until cold, when it may be removed altogether, gives a beautiful surface, but will not bear handling. The ordinary picture varnish, sold at the colour shops, answers very well. Mr. Heywood gives the following—Size with gelatine, and when dry, coat the picture with a varnish made as follows—One ounce gum dammar dissolved in three ounces coal naptha, and decanted.

I find the time allotted to me has nearly expired, so that I can give but one more suggestion, and that is, how to produce raised positive portraits on glass. This is effected by taking the portrait against a black back-ground, carefully painting the figure on the other side of the glass with black varnish, and mounting the whole on coloured paper, according to taste. A landscape or other back-ground may be taken on another plate, and put behind the first, in place of the paper; this produces a very pleasing effect, if well done.

The subject I have chosen is a more prolific one than I had imagined, so that I can only give you, this evening, the first part of the paper, namely, "Useful dodges;" and even here I have been obliged to omit many things which I had put down for remark. However, with your kind permission, I shall refer to the subject on a future occasion.

Mr. Edwards said he must take a slight objection to one point of Mr. Osborn's paper, namely, the use of blue-black. This was a slow drying colour, and was also objectionable from its having to be laid on thick. He had found orange chrome the best thing to use, as it works freely with the brush, and may be thinned with drying oil.

Mr. HOWELL remarked, as to cutting out the figures with scissors, as Mr. Osborn had suggested, that he had generally experienced great difficulty. There was always a hard unartistic line round the portrait.

Mr. OSBORN — It requires very great care but I have seen it.

Mr. EDWARDS — If you use a surgeon's curved scalpel, and cut on a piece of lead, you will find very little difficulty.

Mr. JOHNSTON — It is impossible to cut out a photographic portrait to "mask" it, in technical language, very perfectly in all cases. If it were a lady's head, with smoothly-dressed hair, they might do it very well, but if a gentleman, with light "fuzzy" hair and whiskers, it would be impossible. As to the plan for shading backgrounds, there was a very good mode which he had used for ten years. Having the figure "masked," take a disc of paper, with a wire handle to it; put it over the head, and extend it over some part of the back-ground, and keep moving it some little distance from it. As you can see how your shading is going on, you may modify it to any extent. I believe I was the first to suggest the revolving disc to Mayall eight and a-half years ago. Five years after that he patented it.

On the motion of Mr. Morris, seconded by Mr. Ball, a vote of thanks was passed to Mr. Osborn, and the meeting then adjourned until Dec. 28, when a paper will be read by Mr. Haines, the honorary secretary, "*On the Uses and Abuses of Photography.*"

BLACKHEATH PHOTOGRAPHIC SOCIETY.

AN ordinary meeting of the above Society was held at the Golf Club-house, Blackheath, on the 22nd ultimo, the President, J. GLAISHER, Esq., F.R.S., in the chair.

After the usual business had been gone through, Stewart Knill and H. Williams, Esqrs., were proposed as members of the Society.

A paper, by Herr Pretsch, was read, detailing the advantages of his "*Photogalvanographic Process.*" The paper was accompanied by a series of photogalvanographic plates, illustrating each stage of the process; also by a number of impressions from them.

Herr Pretsch also forwarded numerous copies of two stereographs—one from a plate, the other from a stone—for distribution among the members of the Society.

It was resolved unanimously, "That the Secretary be requested to forward a letter to Herr Pretsch, conveying to him the thanks of the Society for his kindness in presenting his beautiful specimens, and assuring him of the great interest they had excited.

A short discussion on the paper ensued, in the course of which it was pointed out, that the least satisfactory part of the process is the second stage, consisting, as it does, of mere mechanical moulding in some plastic substance, and subject, of course, to all the defects of such an operation.

Mr. MELHUISH then exhibited a negative taken by one of Petzval's lenses, with the full aperture (about 1-5 inches), and expressed his opinion that, thus used, it gave results at least as good as those by a single lens with a small stop, showing the advantage of the new lens.

Mr. WOOD exhibited a number of very beautiful stereoscopic views in North Wales, taken on dry plates,

After which the meeting adjourned.

SUGGESTIONS FOR THE IMPROVEMENT OF LANDSCAPE PHOTOGRAPHY, WITH HINTS FOR THE ENLARGEMENT OF NEGATIVES.

BY THE EDITOR.

(Continued from page 298.)

Now, although the relative distinctness of near and distant objects is to some extent affected by the *angular aperture* of the lens, it is so but in a trifling degree as compared to that which arises from *absolute aperture*, because when the latter is large, the distance between the two edges of the lens is something considerable: hence the pictures taken by these respective parts are taken from *two distinct points of view;* and consequently, the *near objects*, as seen from one edge of the lens, obscure different parts of the background to those which the same objects eclipse when seen from the other edge of the same lens. When the absolute aperture is small, this difference is so trifling as to be nearly imperceptible.

On this account, then, if a certain *angular aperture* be a *sine qua non*, in order to obtain sufficient rapidity of action, a lens of short focal length is to be preferred to one of long focus. But there is also another reason for the same conclusion (be it always understood as applied to landscape purposes), in the fact that with a lens of long focus its *longitudinal aberration* must of necessity be greater than that of a short focus lens; or, what comes to pretty nearly the same thing, with the latter, the focal points of objects at different distances are located nearer to one given plane than can possibly be the case with the similar points resulting from a lens of long focus: hence the indistinctness of those points that are *slightly out of focus* will be less with the short than with the long focus lens.

On the other hand, the *scale* upon which objects are depicted, as well as the actual area covered, are by the former *inferior* to the latter; and therefore, if to obtain certain advantages set forth we employ the former (short focus), in order to fulfil our conditions of size, it becomes necessary subsequently to enlarge our first negative.

This last mentioned requirement, however, involves the consideration of other points.

1st. Can we obtain sufficiently minute definition to allow of any material enlargement without great loss of sharpness?

And 2nd. Can we contrive lenses sufficiently correct to enlarge without excessive deterioration of the resulting picture?

I think I am in a position, from certain experiments I have made, to reply to both these questions in the affirmative.

As regards the first, the minute photographs originally contrived and introduced by myself, under the name of micro-photographs, are a sufficient proof; this will be, I think, readily conceded, when I state, that upon a surface *less* in area than that of a *small pin's head*, I have produced groups of eight or nine full length portraits, all of their likenesses being perfectly recognisable; and also printed matter, so reduced in size, that the dimensions of each letter, in its longest diameter, is under tho *two-thousandth part* of an inch; whilst, with a sufficiently high magnifying power — from fifty to one hundred diameters—the whole front page of the *Liverpool and Manchester Photographic Journal*, reduced to the scale quoted, is perfectly and distinctly readable.*

The answer to the second question follows as a corollary upon that to the first; for, if this writing be distinctly visible and readable under an enlargement of from fifty to one hundred diameters, when, of course, all the errors and defects are increased in the same ratio, how much more certainly would it be the case, if the enlargement were only, let us say, ten diameters, which would be sufficient to increase a picture of two inches by one and a-half inches. to one of twenty by fifteen inches.

I conclude, then, that possibilities, not to say probabilities, are certainly in favour of the success of the scheme, if properly carried out; and no one will dispute that the chances of obtaining *perfect* negatives, of two inches by one and a-half inches in size materially exceed those of producing them of twelve by ten inches, to say nothing of the convenience of carrying and working with apparatus, &c., of such moderate bulk and weight; and, by the employment of wet collodion, with very pure and carefully adjusted chemicals—a matter of comparatively little difficulty, for the small quantities required in the case supposed—we know that by proper measures instantaneous pictures are to be procured.

Moreover, it is both notorious and self-evident, that the difficulty of constructing a *good* lens of small size is not comparable with that requisite for producing a large one, whilst the relative cost of the two is greatly in favour of the small one. And although it may be argued, that this saving would be more than counterbalanced by the additional cost of the *enlarging combination*, it must be borne in mind, that *one* of the latter would be quite sufficient to perform that part of the work for a dozen or more of tho former.

There are, however, still some points to be taken into consideration that must by no means be lightly regarded, and not the least of these is the fact, that no lens hitherto constructed is adapted for reproducing, upon a flat surface, an image derived from a similar one—that is, from a plane.

If, however, one of the two surfaces can be curved in the form of a paraboloid of revolution, or an approximation thereto, the other may be flat, as noticed lately in a paper read by Herr Pretsch, containing some of Professor Petzval's observations, and recently published in the *Liverpool and Manchester Photographic Journal*.

I believe that we should find a portion of a spherical surface of the dimensions required by us, sufficiently accurate in practice, and here again I consider that I can give evidence of the *practicability* of resorting to this proceeding.

(*To be concluded in our next.*)

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* These were exhibited to the members assembled.

ON THE CHROMATIC ILLUMINATION OF SUBJECTS TO BE PHOTOGRAPHED, WITH SUGGESTIONS FOR THE REGISTRATION OF THE VARIOUS ACTINIC PHENOMENA.

By C. J. Burnett.

I have long considered the use of yellow glass of some importance in painting-copying. As to the employment of yellow, blue, or otherwise coloured glass, for equalising the representation of colours by photography, much must in each case depend on whether the deficiency of actinism in the rays reflected by pigments, or by natural colours in vegetation, is an absolute or merely a relative deficiency. We may, to equalise matters, have to act either by excluding part of the overpowering quantity of actinic (*i.e.*, the cyan-actinic) rays from certain parts of the picture, or by keeping back part of the erythro-actinic, or retarding rays emitted by other parts; and again, even in copying a single monochromatic object, deficiency of effect, on sensitive surfaces, may be sometimes caused not by partial absence of the ordinary "chemical" or cyano-actinic rays, but by the *overpowering simultaneous* presence of retarding or erythro-actinic rays, which require to be filtered away.

There is much room for experiment here. We have been too much in the habit of looking to *colour* connected with the photographic difficulties of vegetation, whereas I believe, that the chemical change going on in, and the decomposition of carbonic acid by the foliage, has probably much to do with the actinic character of the "light" reflected by it. The vapours immediately surrounding and disengaged by the foliage may, by their either impeding radiation or reflection from it, or by unfavourable radiations or reflections from themselves, also contribute to our difficulties in foliage-photography.

There are two little points connected with lens-correction which seem never to have received any notice, as far as I am aware, though the uncertain and varying positions of the different foci in any *one lens* at *different times* ought long ago to have called attention to them. They are — firstly, that it is not safe for an optician to correct chromatically a lens, except by comparison with another, ascertained by experience to be properly corrected, unless on a day the light of which is ascertained to be in the relative position of its actinic and luminous foci, something like a fair representative of the average of the days of that season of the year, during which the lens is likely to be made most use of; and secondly, that it is hardly to be expected, that a lens corrected for one "light"-climate will be found to have been properly corrected for an altogether different one. A lens properly corrected for London or Edinburgh, may be probably not so for India, Jamaica, Australia, Polynesia, Sierra Leone, or the Brazils; and it would seem far from impossible, that the disappointments of tropical photography may have been occasionally in some measure owing to this source of error; though peculiarities by deficiency, or excess of different rays (independently of the position of their foci in the camera), as well as the state of saturation of their atmospheres, with loosely absorbed[*] or ozonoidally combined and chemically active actinisms, or ray-powers, may have more to do with it.

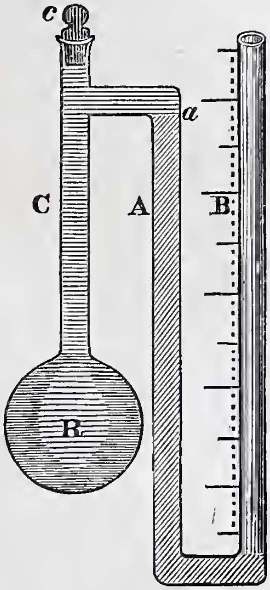
It is much to be desired, that self-registering apparatus for the registration of the different actinisms, as far as we can yet distinguish them, viz.—of *heat* or the expansion-producing actinism (though there may be many comprised under one even here), the *ordinary photographic* or *cyanic* actinism, and the retarding influence, or *erythric* actinism, should be established in different and distinct climates, and at different elevations. Balloon observations (observing carefully *direction* of air-currents and the probable regions from which they are travelling), at a variety of different elevations, making a new one at each rise into another new air-current, would be most interesting, both for mutual comparison and for comparison with *simultaneous* observation on the ground; and the comparison of these actinometric with ozonometric and other meteoric registry, might conduce towards most valuable conclusions. Actinometry on paper *exposed* to, and the same paper *excluded* from, the air (though the *same* glass, of course) should also be *compared*, to eliminate *possible* influence of *absorbed* actinism, and matters held in *solution* or suspension by the air.

By a little clever mechanical contrivance, with differently prepared papers, made to pass under the influence of both undecomposed light and the complete spectrum, as well as very delicate and rapidly influenced thermometric apparatus similarly acted on by the different parts of the spectrum, most valuable sets of observations might probably be obtained at a very small outlay of money and labour.

Professor Draper, in America, has already recorded very interesting observations on the variation in spectral position of the erythro-actinic influence; but we want continuous and connected series, such as can only be obtained by the employment of a set of *self-registering* apparatus in every public observatory, and in every other locality wherever an honest and not absolutely stupid person (for the attention required would be of the simplest kind) can be got to look after it.

Where sensitive *paper* is used, either by itself for the registry of the strength of cyano-actinism, or as the means of recording the indications of thermometers (either of the ordinary kind or electrothermic), or of recording the indications of fluid actinometers, the uranic and ferric papers offer considerable advantages from the length of time during which they retain their sensitiveness unimpaired, much greater than that of similarly sensitive argentine papers.

In the fluid actinometers, the solutions of uranic-oxalate, ferric-oxalate, and the mixture spoken of by Mr. Fowler, at the late meeting of the British Association, and many others[*] might be employed, but the *measurement ought to be made by aid of a column of mercury* connected with the bulb or other reservoir of the sensitive fluid, thus—



the tube A should be filled with mercury to the point *a*, when we commence, the mercury being poured on at the upper end of the tube B, and forced back by a rod and piston made to fit it. The sensitive fluid, oxalate of uranic oxide or other, is then introduced (of measured strength) at a small opening left at Cc, and when it has filled the space left vacant by the mercury, a glass or gutta percha stopper is placed in and closes the opening. It may probably be found advisable to fill only the reservoir R, or part of it, and to leave the air in the tube C. This tube C may be of any length, and twisted in any direction for our convenience in placing the reservoir. The tube may be protected from the light by paint or red paper, and we may regulate the action, by leaving as much or as little of the surface of the reservoir uncovered as we find to be convenient.

For registering by this apparatus, a sheet of sensitive paper, of the same length as the tube *b*, is made to roll off regularly so as to pass behind it, all the surface of the paper being covered up *except where it passes behind a narrow slit which is exactly closed by the tube* B. The light will thus obviously register the heigth of the mercury at each instant of the day on this sheet, and the diagonal line, which a uniform actinism ought to describe on the sheet, whether a straight or a curved one, in consequence of the diminution of the quantity of decomposable chemical in solution as it becomes gradually exhausted, being once ascertained, any deviation from it, upwards or downwards, will at once indicate, and be the measure of corresponding difference in actinic intensity.

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[*] Travelling currents of air, even at considerable elevations, undersaturated with actinism, may absorb much of what the photographer is disappointed by missing So much for undersaturation; while as to over-saturation, both in the tropics and here, what is absorbed may act by direct contact with the sensitive chemicals, and late in the afternoon re-radications of what has been absorbed by the air in the earlier parts of the day (the air acting no longer exclusively as a medium), may disturb our picture, and the multitude of minute local currents, caused by the giving out by the earth of the quantity (to talk loosely) of the higher actinisms which have been, during the day, absorbed and degraded into heat or expansion-producing actinisms, may have its influence.

[*] I do not say that these would all furnish the same standard however adjusted as to relative strength of solutions, different chemicals being affected in different proportions by different parts of the spectrum; though in the case of the uranic and ferric salts, the oxygen being probably the body allotropized in both, it is not improbable that the proportionate relation to different parts of the spectrum might be found to be identical. But if we find different sensitives differently affected, this only enlarges the field of observation, and offers the opportunity for the collection of *additional* and *most valuable data*.

I need hardly mention, as it must be sufficiently evident to any one possessing the slightest acquaintance with the principles of physics, that the tubes A and B must occupy a *horizontal position, side by side*, and not an upright one, when the actinometor is at work, otherwise the increasing pressure of the column of mercury, forced into the tube B, would make the indications given on the scale, by equal disengagements of gas, become gradually less and less.

The rough sketch is intended to give the principle only, not the form, and I have given only one mode of employing it. Another would be, to have a large number of them ready filled and in order, and then, by machinery or by hand, uncover one — say every hour, or every half hour, or ten minutes, during the day, and then record the rise of the mercury during a given fixed period of its exposure. All this might be done and registered by machinery; and it is very desirable that we should have similar registers placed both in undecomposed sunshine, in diffused light, and in different parts of the spectrum, either prism-refracted or transmitted by different permeable media.

Though for registering the entire spectrum, the registry by paper alone is more handy, still there are difficulties about securing an uniformly sensitive paper which tell in favour of the gas-registry, when we have to compare results not recorded on one homogenous piece of paper. There is also a third plan, which, in point of accuracy, may have advantages over either of the others, namely, the weighing of the sensitive fluid *with the vessel containing it*, first *before* actinization and then *after* it. This is in any case a much more easy simple and ready plan, whatever fluid we employ, than that proposed by Mr. Fowler, at the late meeting of the British Association, of weighing separately the *precipitate* found; and I believe, that we might manage, *by not very complicated apparatus, to extend the system of self-registry even to this method of actinometry by weight.*

By a modification of this contrivance we may be able to throw some light on the chemicomotive or allotropomotive equivalents by weight of actinisms from different sources, natural and artificial, and as existing in different parts of the prism-refracted spectrum; or as modified by reflection from, or transmission by, various surfaces or media.

Still each plan may be found to have its advantages and its place. As to registration of thermic, or what are considered as thermic influences in different parts of the spectrum (and under different media), a number of small mercurial thermometers properly placed, and accompanied by self-registering paper coils, worked by the same clockwork, might answer well. Still it is not improbable, that a set of *thermo-electric couples*, or pile of very small size would be both more easily placed and capable of giving much more delicate and valuable indications; and the registration might, in this case, also be performed by photographic paper made to roll past a slit, which would be *more or less closed by the magnetic needles* with which the thermoelectric couple or pile is connected by its conducting wire; or other and better plans of registry, by the needles, might be contrived and adopted.

Apparatus of all these kinds should be employed for the examination of the lunar, and if possible, some of the planetary, as well as the solar radiations, prism-separated as well as combined. Where the sensitive surface is flat, and indeed in all cases where the *spectrum* is used, it will be, of course, necessary to employ a heliostat, or other suitable apparatus, regulated by clockwork, in order to secure an uniform angle of incidence for the rays, and to keep the spectrum from shifting its position relative to the sensitive paper, series of fluid actinometers, mercurial thermometers, or *thermoelectric* thermometers.

The physiological effects of different parts of the spectrum, lunar and planetary, as well as solar, should, if possible, have some test and measurement applied to them. Possibly some of the insects, *small* fishes, or fish-fry, or zoophytes, &c., might supply tests for this purpose. Sun-stroke, producing rays would seem to be most abundant far down in the spectrum. The variation of the action of one ray, or part of the spectrum towards different chemical mixtures must also be observed.[*]

This is but a very rough sketch, but sufficient to direct attention to plans, which might, if properly carried out, help us far towards the throwing off the reproach that of all subjects in this world, "light" itself is that which we have allowed ourselves to remain in the greatest darkness about.

Erratum.— P. 289, first column, line 19th from the bottom, for "four oz. five drops," read "*four or five drops.*"

CORRESPONDENCE.

☞ *All* Editorial *Communications*, Books for Review, *&c., should be forwarded to the Editor*, George Shadbolt, Esq., 2, *Upper Hornsey Rise, N., Middlesex. All* Advertisements *and* Letters *on the* Business *of this* Journal, *should be addressed to the* Publisher, 32, *Castle Street, Liverpool.*

OUT OF DOOR PHOTOGRAPHY.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir, — Will you kindly inform me in your next of a method to keep collodion plates a few hours without having recourse to any of the preservative processes.

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[*] Concentration by lenses, white or coloured, should also be tried, and different media according to colours (and probably also *invisible* peculiarities) will, in the transmission either of white light or spectrum-separated lights, give lights of exceedingly differing physiological activities. So far has been ascertained This is connected with practically important questions. Blue glass or blue awnings (but exact *colours*, and *apparently* the same colours yielded by *different* dyes, must be studied, and even many colourless medea might be valuable) might be sanitarily most valuable in the tropic and in tropical navigations and colours &c., of dress must be carefully studied in connection with this, African natives are said to wear garments dyed with indigo or allied substances (but we must not rely entirely too much on the *visible* actions on light). Black generally is known to be very favourable to sun-stroke, and attractive or *productive* of heat; but black-skinned and black-haired native negroes, &c., suffering little from either, has to be reconciled with this. Bulk and woolliness of hair, and thickness of skull may have much to do with this, and do they venture uncovered into bright sunshine. The absorption of miasms according to colour, &c., by different textures must be examined.

I saw an advertisement, a few days since, of an American collodion, which might be allowed to dry spontaneously—do you know anything about it? does it produce good results? and what is the price?

I have tried the honey process, but am bothered with all sorts of stains and spots, although I can produce negatives on wet collodion without any difficulty; but as I want to take views, and have not the necessary apparatus for working wet collodion out of doors, I am wishful for a process whereby to maintain the characteristics for a period of say five or six hours.—I am, yours, &c.

PUZZLED.

[Surely our correspondent must be joking when he asks us how to keep sensitized collodion plates fit for use *without any preservative process*. Even the vaunted American collodion spoken of, if dried only, would have undergone a *preservative* operation. However, we know nothing of the collodion in question; but from our experience, we should not be led to expect good results from any collodion simply washed and dried. If we want to keep a plate for not more than twenty-four hours, we know of no better process than that with honey; but if for a longer time, Dr. Norris' or Fothergill's dry processes are very simple and satisfactory. Try the honey process once more as follows—Old gelatinous collodion, with say fifteen minims of chloroform added to each ounce—sensitize—drain slightly—cover thoroughly with honey syrup—and keep it covered for a couple of minutes at least, causing it to flow backwards and forwards—drain well for at least twenty minutes. After exposure, dip for an instant into *distilled water*, drain slightly, and pour on developing solution of distilled water six-and-a-half drachms, Beaufoy's acetic acid one-and a half drachms, proto-sulphate of iron fifteen grains, acetate of soda fifteen grains, then wash, and subsequently use pyrogallic acid one grain, citric acid half a grain, *distilled* water one ounce, adding, just before use, a few drops of solution of nitrate of silver—*not* from the bath, but quite fresh. Wash and fix with hyposulphite of soda.—Ed.]

PRODUCTION OF MICRO-PHOTOGRAPHS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir—I have been endeavouring to take microscopic pictures from negatives, by means of a microscope. The chief difficulty I have to contend with, is in the collodion, the film appears under a one inch object glass, to have a granulated surface I was recommended to use Thomas's Collodion, but find it in that respect no better than that of other makers. I have tried different developing solutions with no better success; the iron developer, I think, brings out more half-tone, but the granulated appearance is still the same. If you kindly inform me as to the best collodion, developer, &c., for the purpose, you would greatly oblige

Yours, &c.

R. STARKIE.

[We have used many different samples of collodion for this purpose with good effect, amongst them Hardwich's, Thomas's, Horne and Thornthwaite's, Ponting's, &c., &c. Let your film *set well* before you immerse it in the nitrate of silver solution, which should not be done until all the crapy lines, seen by reflection from the surface, have disappeared. For developer, take either of the following, distilled water six drachms, alcohol two drachms, gallic acid to saturation; if it fogs when using, add one or two drops of saturated solution of citric acid; or pyrogallic acid one grain, distilled water seven and a half drachms, Beaufoy's acetic acid half a drachm, citric acid one quarter of a grain.]

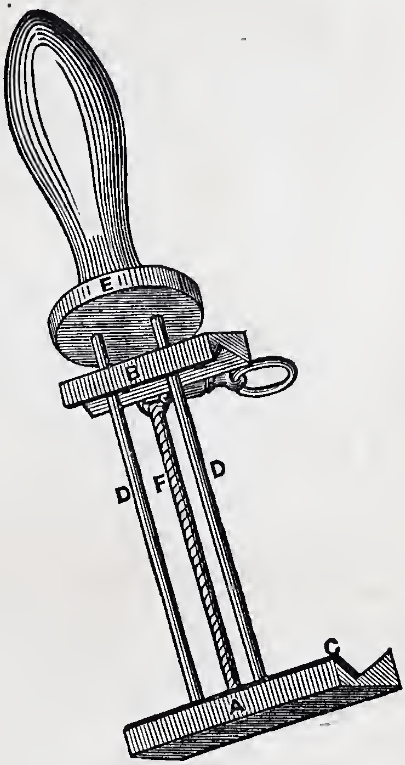
DEVELOPING HOLDER.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir—The following is a description of a developing holder which I use, and which I find prevents soiling the fingers. The figure represents the upper side. A is the end inclined to secure the plate, and is of wood, with a thin piece of gutta percha, C, fastened by pins. B is a corresponding piece, running on two rods, D D, which are fixed both in A and the handle, E. To B is attached a pin with a ring, and to this pin is fastened a piece of strong elastic fixed at the other end, A. This figure shows the elastic band, F, fully stretched, which, when the plate is placed on the rods, will cause the piece B to secure the plate between the two inclined gutta percha ends.

I am, yours, &c.

Rochester, *Nov.* 18, 1858. T. L. MERRITT.



ANOTHER NEW (!!) PROCESS.

To the Editor of the Liverpool and Manchester Photographic Journal.

Sir—Another *new* process! Another great discovery! A letter appears in *The Times*, and forthwith throughout the land, that numerous class of Photographers, who love an "easy" process, betake themselves to the shop of the confectioner, and druggist, or invade the housewife's private store, in search of that valuable syrup which is to accomplish such marvels—raspberry vinegar!

As a Photographer I have seen many of these "discoveries" rise and fall. Usually they are for a time all the rage. The discoverer is a man of note—the photographic "lion" of the day. From dim obscurity he emerges, perhaps to find himself quite a popular character—his name, wherever photography is known, on every lip.

Now, Sir, seeing that this envied position is so easily attainable (nothing more being necessary than to add a preservative syrup to the long list already given to the world), it occurred to me that *I*, too, might distinguish myself in that way, and so win fame. Ambition stirred within me. All day I meditated and pondered. Nay, even when seated by the comfortable fire-side at night, thoughts of greatness and discovery occupied me. I sought for aid in a pipe of the weed of Virginia; and as the smoke curled up in little circles overhead, still meditated and pondered. As a further stimulus to reflection (and as my custom is at eventide), I provided myself with a certain colourless liquid, a tumbler, hot water, and other requisites necessary for the concoction of a "cup which cheers." First the colourless liquid, then the refined produce of the sugar cane were deposited in the glass, water was then added, and a squeeze of lemon finished my preperations. Inspiring beverage! At the first sip my new process dawned upon me, and before the whole had passed my lips, the great *Gin and Water Process* was all arranged in my imagination. Theory all correct—alcohol, saccharine matter, acid citric, with flavour of juniper berries, capital syrup as times go. Now, shall I be immortalized! After another "brew" to success, and feeling rather drowsy (from the overpowering effect of —— my discovery), I retired to rest, and next day proved by experiment that my theory answered well in practice. I hasten briefly to describe the process, dwelling afterwards more fully upon the advantages it possesses.

Take any collodion — excite in the usual way — wash. Then pour on the following solution — London gin, two ounces; lump sugar, half an ounce; two squeezes of lemon, and two ounces of water. Pour this upon the plate. Allow it to drain and dry. Develope in the usual way. It is as well to mix a little more solution than your pictures require, for reasons which are obvious. The advantages of this process are numerous and important. I can only name a few. Its comforting and attractive title is certainly one. There is something soothing in the name, and when to this is added the fragrance of the solution as it floats in the atmosphere of the operating room, a calmness and hopefulness of spirit pervades the mind of the photographer, which is generally so conducive to success.

The syrup is not by any means unpleasant to mix. While the oxymel, gelatine, and albumen, are all more or less glutinous sour, or otherwise unpleasant combinations, requiring time and patience to learn; this is easy and simple, and having being used largely in the popular form of comfort for the inner-man, Britons generally are well informed in its preparation.

Again, Gelatine, Raspberry, Vinegar, Oxymel, &c., may not always be procurable in remote or bye places; but may we not affirm with confidence, that wherever man is, there will gin and water be found.

Finally, I think this process will become a great favourite, so much so, that the various champions of this or that process will here meet harmoniously — throw aside their jealousies and prejudices, and unite in praise of the Great Gin and Water Process.

Manchester. J. W.

P.S. — A friend, who has been trying the process, says he does not find the solution "*keep*." I have been troubled in that way myself, and have had to mix fresh quantities several times during the evening. I find, however, that the best way to keep it, is to cork it up in a bottle, and if the cork be not disturbed, the solution will remain. I am afraid my friend frequently removed the cork. Indeed, I feel pretty certain he did, for he goes on to tell me, that, when fatigued or disappointed, he finds a little of the solution and a mild Havannah excellent restoratives. He adds, that he does not call the process a *dry* one. I believe he said a *very dry* one.

GLASS FOR OPERATING ROOMS.

To the Editor of the Liverpool and Mancheste
Photographic Journal.

Sir — I wish to correct a most egregious blund committed by the reporter, in my remarks at t conclusion of the discussion on glass, at page 3 in the last number of the *Journal*. What I did s was, "The whitest glass changes the most; if it d not change, it would be far superior to any other."

I may add, that I intend exposing the best pie for another season, and again compare with tl counterparts, as I fully believe a larger exposi will disclude a yet greater amount of deterioratio

The specimen of blue glass, P. No. 3, wh changed by the active influence, is, I believe, flashed glass, *i.e.* the cobalt colour is on the surf merely. The unchangeable specimen, C. No. 4, tainted throughout with colour. — I am yours, &

Dec. 10, 1858. GEORGE R. BERRY

ANSWERS TO CORRESPONDENTS.

T. L. Merritt—We are glad to find that you regard us with a more favourable eye than forme

J. M.— We agree with your remarks.

An Amateur — We are very anxious to meet wishes of all our subscribers; but not even to ret our correspondent as one, and to gain two or th of his friends in the same capacity, can we cons to insert a simple positive or negative collodion p cess in *every number* of the *Journal*. Leg of mut is excellent food, but if we had it *every day*, eit roast or boiled, we might possibly tire of it.

Claude — We cannot undertake to recomm particular dealers or makers of photographic app tus; you must consult the advertisements. A t lens camera for stereoscopics by all means.

Received.—Thos. Davidson — G. —W. B. C.

PHOTOGRAPHIC SOCIETY.

THE EXHIBITION of PHOTOGRAPS will open early in January, at the Galler British Artists, Suffolk Street, Pall Mall.

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